

DOCUMENT RESUME

ED 351 196

SE 053 329

TITLE Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990.

INSTITUTION Quantum Research Corp., Bethesda, MD.

SPONS AGENCY National Science Foundation, Washington, D.C. Div. of Science Resources Studies.

REPORT NO NSF-92-321

PUB DATE Jul 92

NOTE 194p.

AVAILABLE FROM Division of Science Resources Studies, National Science Foundation, Washington, DC 20550 (free).

PUB TYPE Statistical Data (110)

EDRS PRICE MF01/PC08 Plus Postage.

DESCRIPTORS Black Colleges; Budgeting; Economic Research; *Engineering; *Expenditures; Higher Education; *Research and Development; Resource Allocation; Science Education; *Science Programs; *Scientific Research; *Universities

IDENTIFIERS *National Science Foundation

ABSTRACT

Data for this report on the National Science Foundation's research and development (R&D) expenditures were collected from a sample of 460 institutions of higher education in the United States and outlying areas. Institutions were selected from the universe of 595 schools that grant a graduate science or engineering degree or perform activities for which at least \$50,000 has been funded from separately budgeted R&D expenditures. The sample population includes all doctorate-granting institutions, all historically black colleges and universities with R&D expenditures, and a random sample of all other institutions. In addition, the survey includes 18 federally funded research and development centers. The bulk of the report consists of detailed statistical tables, and the survey instruments are included. (PR)

* Reproductions supplied by EDRS are the best that can be made *

* from the original document. *

ED351196

Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990



Science and Engineering Activities Program
Division of Science Resources Studies
National Science Foundation

Detailed Statistical Tables

NSF 92-321

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- ☒ This document has been reproduced as received from the person or organization originating it
- ☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

BEST COPY AVAILABLE

053529

ERIC
Full Text Provided by ERIC

Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990

July 1992



Project Officer: M. Marge Machen

Science and Engineering Activities Program
Division of Science Resources Studies
National Science Foundation

Detailed Statistical Tables

NSF 92-321

Suggested Citation

National Science Foundation, *Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990*, NSF 92-321, Detailed Statistical Tables, (Washington, D.C., 1992).

Availability of Publications

Single copies are available gratis from the Division of Science Resources Studies, National Science Foundation, Washington, D.C. 20550. See inside back cover for availability via the Science and Technology Information System (STIS).

Telephonic Device for the Deaf

The National Science Foundation has Telephonic Device for the Deaf (TDD) capability, which enables individuals with hearing impairments to communicate with the Division of Personnel Management about NSF programs, employment, or general information. The phone number is (202) 357-7492.

Acknowledgments

The development of *Academic Science and Engineering: R&D Expenditures, Fiscal Year 1990* was managed by M. Marge Machen, Project Officer, Science and Engineering Activities Program of the National Science Foundation's Division of Science Resources Studies (SRS). The project was developed under the supervision of Eileen L. Collins, Program Director, with guidance and review provided by the SRS Director, Kenneth M. Brown.

The survey was conducted by Quantum Research Corporation (QRC) of Bethesda, Maryland, under NSF contract number SRS-91-00672. The SRS gratefully acknowledges the QRC staff members who worked on this project: Barbara DePaul, M. A. Holubek, Richard L. Klein, George Nozicka, Carlos Reyes and Stève Toléqué.

Contents

| | Page |
|--|------|
| General Notes | vii |
| Section: | |
| A. Technical Notes | 1 |
| Technical Tables | |
| Table | |
| A-1a. Response rates for the Academic Science and Engineering R&D Expenditures Survey at all institutions, by type of institution: FY 1990 | 7 |
| A-1b. Response rates for the Academic Science and Engineering R&D Expenditures Survey, by sampling strata and highest degree granted: FY 1990 | 8 |
| A-2. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey, by type of institution: FY 1990 | 9 |
| A-3a. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey, by science and engineering field: FY 1990 | 10 |
| A-3b. Imputed and/or estimated amount of federally financed Academic Science and Engineering R&D Expenditures, by science and engineering field: FY 1990 | 11 |
| A-4. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey, by source of funds: FY 1990 | 12 |
| A-5. Standard errors of the estimates (SE) and coefficients of variation (CV) for the Academic Science and Engineering R&D Expenditures Survey, by science and engineering field: FY 1990 | 13 |
| B. Detailed Statistical Tables | 15 |
| C. University-Administered Federally Funded Research and Development Centers: FY 1990 | 179 |
| D. Survey Instruments | 181 |

General Notes

The data presented in this report were compiled from the National Science Foundation's (NSF's) fiscal year (FY) 1990 Survey of Scientific and Engineering Expenditures at Universities and Colleges. They refer to science and engineering (S&E) expenditures for separately budgeted research and development (R&D). Terms used in institutional accounting procedures are incorporated throughout the tables.

The term "separately budgeted research and development (R&D) expenditures" includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. "Expenditures" are funds actually spent by an institution during its fiscal year. "Separately budgeted R&D equipment purchased from current funds" includes all research equipment purchased under sponsored research project awards.

"Federally funded research and development centers" (FFRDCs) are R&D-performing organizations that range from the traditional contractor-owned/contractor-operated or Government-owned/contractor-operated organizational structures to various degrees of contractor/Government control and ownership. FFRDCs are formed to achieve particular Federal R&D objectives that cannot be met as effectively by existing organizations.

The terms "imputation" and "imputed data" refer to the computerized process by which NSF develops estimates of data when institutions do not furnish the information upon request. Using this process, estimates are developed that are based primarily on key data items reported in prior years' surveys when available. When not available, estimates are based on figures derived from data of respondent institutions that have similar characteristics, including highest degree granted and type of institutional control (public or private). In this publication, the letter "I" is used to identify imputed data and the letter "E" is used when respondent institutions indicated that their data were estimated, or when data required slight mathematical adjustments.

Data presented in trend tables are assembled from the most recently completed survey cycle. Since prior years' data are reviewed for consistency with current year responses and, when necessary, revised in consultation with institutional respondents, references to prior years' data should be restricted to this document.

Requests for additional information concerning the survey findings for the current or prior surveys should be directed to Ms. Marge Machen at the following address:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
National Science Foundation
Washington, DC 20550

(202) 634-4673

Section A. Technical Notes

Scope of the Survey

Data for the National Science Foundation's (NSF's) fiscal year (FY) 1990 report on research and development (R&D) expenditures were collected from a sample of 460 institutions of higher education in the United States and outlying areas. Those institutions were selected from the universe of 595 schools that grant a graduate science or engineering (S&E) degree and/or perform activities for which at least \$50,000 has been funded from separately budgeted R&D expenditures. The sample population includes all doctorate-granting institutions, all historically black colleges and universities (HBCUs) with R&D expenditures, and a random sample of all other institutions.

In addition, the survey includes 18 federally funded research and development centers (FFRDCs). To qualify, an FFRDC must be engaged in basic or applied research, development, or management of R&D activities, and the results of these activities must be directly monitored by the Federal Government--usually a single agency--in a relationship expected to be maintained on a long-term basis. The center must be operated, managed, and administered by either a university or consortium of universities as an autonomous organization or as an identifiable separate operating unit of its parent institution. Finally, 70 percent or more of the center's financial support must be received from the Federal Government.

Although the same survey form (NSF Form 411) is used to collect data from both academic institutions and FFRDCs, the resulting data are presented separately in this report. The survey population was reviewed prior to mailing the questionnaires to ensure that each institutional classification is accurate. Characteristics of the schools were reviewed before and during the course of the survey to determine if changes have occurred (i.e., in highest degree granted or in terms of school openings, closings, or mergers). Names of institutions newly added to the *HEP 91 Higher Education Directory* were reviewed to determine their eligibility for inclusion in this survey.¹

Survey Instrument

The questionnaire used in the FY 1990 survey incorporates two significant changes from that of prior years. Item 4 on Capital Expenditures has been discontinued from the survey. A new subfield has been added under "Engineering" in Items 2 and 3: Metallurgical and Materials Engineering. In addition, the "Crosswalk," which is standard in the survey package, now appears on the last two pages as part of the survey instrument, rather than as a separate item. The crosswalk relates the S&E fields designated in the NSF survey to those of the National Center for Education Statistics (NCES) Classification of Instructional Programs. The crosswalk is provided to aid respondents whose institutional recordkeeping systems are organized according to these NCES classifications.

Most major R&D performers have incorporated into their recordkeeping systems the data that are essential to complete this survey, thereby ensuring a consistent format from one year to the next.

¹ Higher Education Publications, Inc., Falls Church, VA, 1991.

Such consistency yields the most useful statistics for time series. As a rule, information to complete this questionnaire is found within the institutions' year-end accounting records.

The survey questionnaire consists of three main items:

Item 1 is a request that institutions report their total current expenditures for separately budgeted S&E R&D by source of funds and indicate the percentage of the total and percentage of the federally financed portion that are considered basic research. Care should be observed when interpreting data on source of funds; for example, industry R&D support is limited to grants and contracts for R&D activities from profit-making organizations, and the total reported excludes research funded through unrestricted accounts and from corporate foundations, endowments, and fellowships to students. An increasing number of institutions have linkages with industry and foundations via subcontracts, which complicates the identification of funding source. In addition, institutional policy may determine whether unrestricted state support is reported as state or as institutional funding.

Item 2 is a request for total and federally financed current fund expenditures for separately budgeted R&D activities by detailed S&E fields. Major fields remain unchanged from the FY 1989 questionnaire. When interpreting these data at the detailed discipline level, users should keep in mind that there is considerable interdisciplinary activity and/or overlap among subdisciplines.

Item 3 is a request that institutions specify the portion of total expenditures and the portion of federally financed expenditures reported in Items 1 and 2 that were used for the purchase of research equipment out of current funds. This includes all research equipment purchased under sponsored research project awards and disbursed in the same detailed disciplines as in Item 2. These data are of special interest to Federal and institutional policymakers in determining current funding levels for scientific research instrumentation.

Response Rate

The FY 1990 survey questionnaires were mailed in October 1990. Every effort was made to maintain close contact with respondents in order to preserve both consistency and continuity in the resultant data. Questionnaires were carefully examined upon receipt for completeness. Computerized facsimiles of the survey data were then prepared for each institution, comparing the current and 2 previous years' data and noting any substantive disparities. These facsimiles were mailed to the respondents so that they could provide revisions before final processing and tabulation of the data took place.

Respondents were asked to explain significant discrepancies between current and prior-year reporting patterns previously verified as correct. They were encouraged to correct prior years' data if anomalies were identified. When updated or amended figures covering past years were submitted, trend data were correspondingly changed by NSF. Similarly, if a respondent institution underwent an organizational change, such as a merger, NSF incorporated the effects of such changes into prior years' data.

By the survey closing date in late June, forms had been received from 452 universities and colleges out of a sample population of 460, resulting in a 98.3-percent response rate. Responses were received from 98.2 percent of all doctorate-granting institutions, where more than 98 percent of the R&D expenditures in S&E fields was disbursed. Also, forms were received from all 18 FFRDCs. Tables A-1a and A-1b display a detailed breakdown of the response rates by degree granted and by sampling stratum (sampling strata are defined under Sampling, Weighting, and Standard Errors of the Estimates).

National Total and Imputation

To provide a national estimate for universities and colleges of R&D expenditures for FY 1990 it was necessary to implement three statistical procedures. First, data were estimated for the approximately 2 percent of the sample population that had not responded by the closing date of the survey by "imputation," a technique used consistently since FY 1976. Second, data were either imputed or estimated for universities and colleges that submitted only partial responses. The combined imputed and/or estimated amounts totaled \$331 million for R&D expenditures at universities and colleges (see Selected Institution Data Anomalies). Third, the sample total was weighted to compensate for those universities and colleges that were in the survey universe but not in the survey sample (this procedure is described under Sampling, Weighting, and Standard Errors of the Estimates). This led to an inflation of \$127 million in the national total of R&D expenditures at universities and colleges for FY 1990 to equal \$16,325 million, as shown in table A-2.

Tables A-3a and A-3b present a breakdown of both the imputed and/or estimated amounts, and the amount of the weighted inflator by broad S&E fields. The dollar amount imputed and/or estimated is displayed along with the percentage it represents of the national estimate for universities and colleges in that particular field. Also given is the amount of the weighted inflator for that field. The amount imputed or estimated and the amount of the weighted inflator are similarly broken down by source of funds in table A-4.

A significant number of surveyed institutions have been responding only intermittently in past years, providing data one year, not responding for one or more subsequent years, and then providing data again. For the years in which no response was received, data have been imputed as previously described. Although the imputation algorithm accurately reflects national trends, it cannot account for reporting anomalies at individual institutions. For this reason, a separate backcasting of previous years' data was performed, following current-year imputation.

For each institution, formerly imputed key variables for Items 1 to 3 were compared with subsequent submissions to determine whether the imputed data accurately represent the growth/decline patterns shown by reported data. Re-estimation was applied when the imputed data were not consistent with reported data. If data were reported for fiscal years 1986 and 1990 but not for the intervening years, for example, the difference between the reported figures for each item total was calculated and evenly distributed across the intervening (1987-89) years. The new figures were spread across disciplines (Items 2 and 3) or sources of support (Item 1) on the basis of the most recent reporting pattern. These procedures resulted in much more consistent reporting trends for individual institutions but had little effect upon aggregate figures reflecting national totals.

Selected Data Anomalies

Aggregate academic expenditure trend data are generally consistent from year to year, although data for individual institutions may vary considerably. Data anomalies may reflect true increases or decreases in expenditures or may be the result of changes in reporting methodology. One particularly large difference between FY 1989 and FY 1990 data is reflected in the imputed amounts and rates in tables A-3a and 3b. These large estimates are representative of Stanford University, whose data were received too late for inclusion in the FY 1990 database. Their actual FY 1990 data will be displayed in the FY 1991 tables.

Sampling, Weighting, and Standard Errors of the Estimates

NSF converted from a full population survey of 595 institutions to a sample survey of 460 institutions for the FY 1989 cycle. The sample remained unchanged for the FY 1990 cycle. During the FY 1990 survey cycle, the survey design separated universities and colleges from FFRDCs. In turn, universities and colleges were divided into the following four strata (three certainty strata and one probability stratum):

- (1) **A certainty stratum of doctorate-granting institutions.** This stratum contains 306 universities and colleges that grant doctorate degrees in S&E fields. Excluded from this stratum are all doctorate-granting HBCUs and university system campuses.
- (2) **A certainty stratum of HBCUs.** This stratum includes all 70 HBCUs (including those that are doctorate-granting institutions or university system campuses).
- (3) **A certainty stratum of university system campuses.** This stratum includes 36 "university-system campuses"; each sample entry is the aggregation of all campuses that make up a university system. Note that no HBCUs are included in this stratum even if they are university-system campuses.
- (4) **A probability stratum of institutions that grant degrees at the master's level or below.** This stratum includes 48 master's or bachelor's degree-granting institutions and institutions that offer no S&E degrees at any degree level, out of a survey stratum universe of 183. Note that none of the universities or colleges included in this stratum are either HBCUs or university-system campuses. This stratum had a sampling ratio of 0.26.

The data in this report are weighted to represent national-level R&D expenditures for universities and colleges (as mentioned previously under "National Total and Imputation"). The sample data, after imputation and estimation, were inflated to produce universe estimates by weighting the individual questionnaire data values by the inverse of the sampling ratio. Thus, in aggregating data for institutions from the probability stratum for tabulation purposes, each datum value was weighted by the inverse of the sampling ratio.

Estimates derived for institutions in the probability stratum were based on a sample, and the relative standard error (coefficient of variation) of an estimate was then obtained by dividing the standard error by the estimate itself, expressed as a percentage of the estimate.

The standard errors and coefficients of variation for each major S&E field are shown in table A-5. For example, for total academic R&D expenditures of \$16 billion, the standard error of the estimate is \$42 million at the 95-percent confidence level, with a coefficient of variation of ± 3 percent. Similarly, for the estimate of \$10 billion in federally financed expenditures, the 95-percent confidence limits are plus or minus \$30 million, with a coefficient of variation of ± 3 percent.

Data Availability and Distribution

Data published in this report are also available in machine-readable form on magnetic tapes. A multiyear data tape is available that contains data for FY 1972 through FY 1990; single-year tapes may also be purchased for any of these years. Information on tape formats and years available, with prices and instructions for ordering, are contained in the current *Supplemental User Guide to Data Tapes*, which is updated each year. A general *Guide to the National Science Foundation's Surveys of Academic Science and Engineering* is also available. Both user guides may be obtained by contacting Ms. Marge Machen at the following address and telephone number:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
National Science Foundation
Washington, DC 20550

(202) 634-4673

Selected data items for individual doctorate-granting, master's-granting, and historically black institutions are available on computer-generated Institutional Profiles, which consist of data not only from this survey but also from NSF's other two academic S&E surveys: Federal Support to Universities and Colleges, and Graduate Enrollment and Support. Since the R&D Expenditures Survey is a sample data collection effort, not all master's-granting institutions' data appear on every profile. Institutional Profiles for any institution or limited group of institutions may be ordered by contacting Mr. Richard Bennof at the following address and telephone number:

Science and Engineering Activities Program
Room L-609
Division of Science Resources Studies
National Science Foundation
Washington, DC 20550

(202) 634-4673

The CASPAR (Computer-Aided Science Policy Analysis and Research) database system is an easy-to-use tool for retrieval and analysis of statistical data on academic S&E resources. CASPAR provides the analyst with an extensive and growing data library with multiyear statistics on the state of higher education in general and on S&E resources specifically. This data library is based on a set of standardized institutional and field of science definitions across the multiple sources used to develop

the database. The CASPAR program includes built-in help capabilities to facilitate the use and interpretation of the data.

CASPAR data are drawn from a number of sources. All are available for individual institutions, by State, and at the national level. Longitudinal data from surveys of universities and colleges conducted by the NSF Division of Science Resources Studies include the R&D Expenditures Survey, Federal Support Survey, and the Graduate Enrollment and Support Survey. Data from surveys of universities and colleges conducted by the NCES include Earned Degrees, Opening Fall Enrollment, Faculty Salaries, Tenure, and Fringe Benefits, and Financial Statistics. Data from other sources include the National Research Council Doctorate Program Ratings.

CASPAR is distributed on CD-ROM compact disk. For additional information on CASPAR, write or FAX to the following address:

Quantum Research Corporation
ATTN: CASPAR
7315 Wisconsin Ave, Suite 631W
Bethesda, MD 20814

FAX Number: (301) 657-3862

**Table A-1a. Response rates for the Academic Science and Engineering R&D
Expenditures Survey at all institutions,
by type of institution: FY 1990**

| Highest degree granted | Number in survey universe | Number in sample pop. | Number of complete responses | Number of partial responses | Total number of responses | Response rate |
|------------------------------------|------------------------------------|--------------------------------|---------------------------------------|--------------------------------------|---------------------------------|------------------|
| Grand total | 613 | 478 | 297 | 173 | 470 | 98.3% |
| Universities and colleges total | 595 | 460 | 281 | 171 | 452 | 98.3 |
| Doctorate | 328 | 328 | 198 | 124 | 322 | 98.2 |
| Master's | 177 | 76 | 47 | 29 | 76 | 100.0 |
| Bachelor's and no S&E degree | 90 | 56 | 36 | 18 | 54 | 96.4 |
| FFRDCs total | 18 | 18 | 16 | 2 | 18 | 100.0 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering
Expenditures at Universities and Colleges

**Table A-1b. Response rates for the Academic Science and Engineering
R&D Expenditures Survey at universities and colleges,
by sampling strata and highest degree granted: FY 1990**

| Sampling Stratum | Number in survey universe | Number in sample pop. | Number of complete responses | Number of partial responses | Total number of responses | Response rate |
|---|------------------------------------|--------------------------------|---------------------------------------|--------------------------------------|---------------------------------|------------------|
| Grand total | 595 | 460 | 281 | 171 | 452 | 98.3% |
| #1 Doctorate stratum ⁽¹⁾ | 306 | 306 | 184 | 117 | 301 | 98.4 |
| #2 HBCU stratum | 70 | 70 | 36 | 31 | 67 | 95.7 |
| Doctorate | 7 | 7 | 1 | 5 | 6 | 85.7 |
| Master's | 20 | 20 | 7 | 13 | 20 | 100.0 |
| Bachelor's and no S&E degree | 43 | 43 | 28 | 13 | 41 | 95.3 |
| #3 University systems stratum | 36 | 36 | 31 | 5 | 36 | 100.0 |
| Doctorate | 15 | 15 | 13 | 2 | 15 | 100.0 |
| Master's | 20 | 20 | 17 | 3 | 20 | 100.0 |
| Bachelor's and no S&E degree | 1 | 1 | 1 | 0 | 1 | 100.0 |
| #4 Master's or below stratum ⁽²⁾ | 183 | 48 | 30 | 18 | 48 | 100.0 |
| Master's | 137 | 36 | 23 | 13 | 36 | 100.0 |
| Bachelor's and no S&E degree | 46 | 12 | 7 | 5 | 12 | 100.0 |

(1) Doctorate stratum does not include doctorate-granting institutions that are recorded in either the HBCU or the university system stratum.

(2) Master's or below stratum does not include master's-granting institutions or bachelor's and no S&E degree granting institutions that are recorded in either the HBCU or the university systems stratum.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-2. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey at universities and colleges, by type of institution: FY 1990

[Dollars in millions]

| Highest degree granted | National estimate of separately bugeted R&D expenditures | Amount inflated due to weighting | Amount imputed and/or estimated | Imputed and/or estimated as percent of total |
|------------------------------------|--|----------------------------------|---------------------------------|--|
| Total | 16,325 | 127 | 331 | 2.0% |
| Doctorate-granting institutions | 16,057 | 0 | 325 | 2.0 |
| Nondoctorate-granting institutions | 268 | 127 | 6 | 2.2 |

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-3a. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey at universities and colleges, by science and engineering field: FY 1990

[Dollars in millions]

| Science and engineering field | National estimate of separately budgeted R&D expenditures | Amount inflated due to weighting | Amount imputed and/or estimated | Imputed and/or estimated as percent of total |
|-------------------------------|---|----------------------------------|---------------------------------|--|
| Total | 16,325 | 127 | 331 | 2.0% |
| Engineering | 2,682 | 25 | 153 | 5.7 |
| Physical sciences | 1,781 | 20 | 87 | 4.9 |
| Environmental sciences | 1,047 | 20 | 18 | 1.7 |
| Mathematical sciences | 221 | 3 | 6 | 2.8 |
| Computer sciences | 503 | 5 | 26 | 5.1 |
| Life sciences | 8,763 | 33 | 341 | 3.9 |
| Psychology | 260 | 10 | 10 | 3.9 |
| Social sciences | 702 | 9 | 15 | 2.1 |
| Other sciences | 365 | 2 | 2 | 0.6 |

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-3b. Imputed and/or estimated amount of federally financed Academic Science and Engineering R&D Expenditures at universities and colleges, by science and engineering field: FY 1990

[Dollars in millions]

| Science and engineering field | National estimate of federally financed R&D expenditures | Amount inflated due to weighting | Amount imputed and/or estimated | Imputed and/or estimated as percent of total |
|-------------------------------|--|----------------------------------|---------------------------------|--|
| Total | 9,611 | 60 | 272 | 2.8% |
| Engineering | 1,535 | 9 | 111 | 7.2 |
| Physical sciences | 1,290 | 10 | 62 | 4.8 |
| Environmental sciences | 674 | 14 | 14 | 2.1 |
| Mathematical sciences | 159 | 2 | 4 | 2.5 |
| Computer sciences | 334 | 2 | 22 | 6.6 |
| Life sciences | 5,068 | 13 | 205 | 4.0 |
| Psychology | 169 | 7 | 7 | 3.9 |
| Social sciences | 225 | 2 | 6 | 2.8 |
| Other sciences | 157 | ** | 1 | 0.4 |

NOTES: A double asterisk (**) indicates that the amount is less than \$500,000.00, but greater than zero.
Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table A-4. Imputed and/or estimated amount for the Academic Science and Engineering R&D Expenditures Survey at universities and colleges, by source of funds: FY 1990

[Dollars in millions]

| Source of funds | National estimate of separately budgeted R&D expenditures | Amount inflated due to weighting | Amount imputed and/or estimated | Imputed and/or estimated as percent of total |
|----------------------------|---|----------------------------------|---------------------------------|--|
| Total | 16,325 | 127 | 331 | 2.0% |
| Federal government | 9,611 | 60 | 271 | 2.8 |
| State and local government | 1,338 | 25 | 51 | 3.8 |
| Industry | 1,135 | 13 | 49 | 4.3 |
| Institutional funds | 3,017 | 19 | 90 | 3.0 |
| All other sources | 1,223 | 9 | 64 | 5.2 |

NOTES: Because of rounding, components may not add to totals.
Percentages are calculated from unrounded figures.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

**Table A-5. Standard errors of the estimates (SE)
and coefficients of variation (CV) for the Academic Science
and Engineering R&D Expenditures Survey at all institutions,
by science and engineering field: FY 1990**

[Dollars in thousands]

| Science and engineering field | Separately bugeted R&D expeditures | | Federally financed R&D expeditures | |
|----------------------------------|---------------------------------------|---------|---------------------------------------|---------|
| | 1.96 SE | 1.96 CV | 1.96 SE | 1.96 CV |
| Total | 42,213 | 0.3% | 29,570 | 0.3% |
| Engineering | 14,765 | .6 | 7,471 | .5 |
| Physical sciences | 6,437 | .4 | 4,520 | .4 |
| Environmental sciences | 15,477 | 1.5 | 12,411 | 1.8 |
| Mathematical sciences | 1,418 | .6 | 739 | .5 |
| Computer sciences | 2,149 | .4 | 1,135 | .3 |
| Life sciences | 11,080 | .1 | 4,408 | .5 |
| Psychology | 7,505 | 2.9 | 7,108 | 4.2 |
| Social sciences | 4,854 | .7 | 1,743 | .8 |
| Other sciences | 1,810 | .5 | 1,560 | .7 |

SOURCE: National Science Foundation/GRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Section B. Detailed Statistical Tables

To obtain accurate historical data use only the latest detailed statistical tables for FY 1990 and not data published earlier. Institutions revise prior-year data when important changes occur in reporting practices and program classifications, and only the latest tables incorporate such changes.

| | Page |
|--|------|
| Universities and Colleges | |
| R&D EXPENDITURES | |
| B-1. By year and source of funds: fiscal years 1953-90 | 19 |
| B-2. By year and character of work: fiscal years 1953-90 | 20 |
| R&D EXPENDITURES BY SOURCE OF FUNDS AND SCIENCE & ENGINEERING FIELD | |
| B-3. Total R&D: fiscal years 1983-90 | 21 |
| B-4. Federally financed R&D: fiscal years 1983-90 | 22 |
| B-5. Non-Federal R&D: fiscal years 1983-90 | 23 |
| B-6. Total R&D at doctorate-granting institutions: fiscal years 1983-90 | 24 |
| B-7. Federally financed R&D at doctorate-granting institutions: fiscal years 1983-90 | 25 |
| B-8. Non-Federal R&D at doctorate-granting institutions: fiscal years 1983-90 | 26 |
| B-9. R&D at public institutions: fiscal years 1983-90 | 27 |
| B-10. Federally financed R&D at public institutions: fiscal years 1983-90 | 28 |
| B-11. Non-Federal R&D at public institutions: fiscal years 1983-90 | 29 |
| B-12. R&D at private institutions: fiscal years 1983-90 | 30 |
| B-13. Federally financed R&D at private institutions: fiscal years 1983-90 | 31 |
| B-14. Non-Federal R&D at private institutions: fiscal years 1983-90 | 32 |
| B-15. Total R&D at public and private doctorate-granting institutions: fiscal years 1983, 1989, and 1990 | 33 |
| B-16. Federally financed R&D at public and private doctorate-granting institutions: fiscal years 1983, 1989, and 1990 | 34 |
| B-17. Non-Federal R&D at public and private doctorate-granting institutions: fiscal years 1983, 1989, and 1990 | 35 |

R&D EXPENDITURES AT HISTORICALLY BLACK INSTITUTIONS BY SOURCE OF FUNDS AND SCIENCE & ENGINEERING FIELD

| | | |
|-------|--|----|
| B-18. | Total R&D: fiscal years 1983-90 | 36 |
| B-19. | Federally financed R&D: fiscal years 1983-90 | 37 |
| B-20. | Non-Federal R&D: fiscal years 1983-90 | 38 |

GEOGRAPHIC DISTRIBUTION OF R&D EXPENDITURES

| | | |
|-------|--|----|
| B-21. | Total R&D by division and source: fiscal year 1990 | 39 |
| B-22. | Total R&D at doctorate-granting institutions by division, State, and source of funds: fiscal year 1990 | 40 |
| B-23. | Total R&D at doctorate-granting institutions by division and State: fiscal years 1983-90 | 41 |
| B-24. | Federally financed R&D at doctorate-granting institutions by division and State: fiscal years 1983-90 | 42 |
| B-25. | State and Local government-financed R&D at doctorate-granting institutions by division and State: fiscal years 1983-90 | 43 |
| B-26. | Industry-financed R&D expenditures at doctorate-granting institutions by division and State: fiscal years 1983-90 | 44 |
| B-27. | Institutionally financed R&D expenditures at doctorate-granting institutions by division and State: fiscal years 1983-90 | 45 |
| B-28. | All other sources of financed R&D expenditures at doctorate-granting institutions by division and State: fiscal years 1983-90 | 46 |
| B-29. | R&D expenditures at doctorate-granting institutions by State, control, source of funds, and institution: fiscal year 1990 | 47 |
| B-30. | R&D expenditures at doctorate-granting institutions by division, State, and science & engineering field: fiscal year 1990 | 57 |
| B-31. | R&D expenditures at doctorate-granting institutions by State, control, science and engineering field, and institution: fiscal year 1990 | 58 |

R&D EXPENDITURES, IN DESCENDING ORDER OF AMOUNTS BY INSTITUTION

| | | |
|-------|--|-----|
| B-32. | Total expenditures for all R&D performers: fiscal years 1983-90 | 68 |
| B-33. | Federally financed expenditures for all R&D performers: fiscal years 1983-90 | 78 |
| B-34. | Non-Federal expenditures for 200 largest R&D performers: fiscal years 1983-90 | 88 |
| B-35. | By source of funds for 200 largest R&D performers: fiscal year 1990 | 92 |
| B-36. | By source of funds for 150 largest public R&D performers: fiscal year 1990 | 96 |
| B-37. | By source of funds for 100 largest private R&D performers: fiscal year 1990 | 99 |
| B-38. | Industry-sponsored R&D for 200 largest performers: fiscal years 1983-90 | 101 |

| | | |
|-------|--|-----|
| B-39. | By field of science and engineering for 200 largest R&D performers: fiscal year 1990 | 105 |
| B-40. | By field of science and engineering for 200 largest federally financed R&D performers: fiscal year 1990 | 109 |
| B-41. | By field of science and engineering for 200 largest non-Federal R&D performers: fiscal year 1990 | 113 |
| B-42. | By field of science and engineering for 150 largest public R&D performers: fiscal year 1990 | 117 |
| B-43. | By field of science and engineering for 100 largest federally financed public R&D performers: fiscal year 1990 | 120 |
| B-44. | By field of science and engineering for 100 largest private R&D performers: fiscal year 1990 | 122 |
| B-45. | By field of science and engineering for 100 largest federally financed private R&D performers: fiscal year 1990 | 124 |
| B-46. | Total and federally financed for historically black R&D performers: fiscal years 1987-90 | 126 |

R&D EXPENDITURES, BY SCIENCE & ENGINEERING FIELD AND SELECTED SUBFIELDS, IN DESCENDING ORDER OF AMOUNTS BY INSTITUTION

| | | |
|-------|--|-----|
| B-47. | Total and federally financed for 100 largest R&D performers in engineering: fiscal years 1987-90 | 128 |
| B-48. | For 100 largest R&D performers in engineering, with subfields differentiated: fiscal year 1990 | 130 |
| B-49. | For 100 largest federally financed R&D performers in engineering, with subfields differentiated: fiscal year 1990 | 132 |
| B-50. | For 100 largest R&D performers in the physical sciences, with 1990 subfields differentiated: fiscal years 1987-90 | 134 |
| B-51. | For 100 largest federally financed R&D performers in the physical sciences, with 1990 subfields differentiated: fiscal years 1987-90 | 136 |
| B-52. | Total and federally financed for 100 largest R&D performers in chemistry: fiscal years 1987-90 | 138 |
| B-53. | Total and federally financed for 100 largest R&D performers in physics: fiscal years 1987-90 | 140 |
| B-54. | For 100 largest R&D performers in the environmental sciences, with 1990 subfields differentiated: fiscal years 1987-90 | 142 |
| B-55. | For 100 largest federally financed R&D performers in the environmental sciences, with 1990 subfields differentiated fiscal years 1987-90 | 144 |
| B-56. | Total and federally financed for 100 largest R&D performers in the mathematical sciences: fiscal years 1987-90 | 146 |
| B-57. | Total and federally financed for 100 largest R&D performers in the computer sciences: fiscal years 1987-90 | 148 |
| B-58. | For 150 largest R&D performers in the life sciences, with 1990 subfields differentiated: fiscal years 1987-90 | 150 |
| B-59. | For 150 largest federally financed R&D performers in the life sciences, with 1990 subfields differentiated: fiscal years 1987-90 | 153 |

| | | |
|-------|--|-----|
| B-60. | Total and federally financed for 100 largest R&D performers in the agricultural sciences: fiscal years 1987-90 | 156 |
| B-61. | Total and federally financed for 100 largest R&D performers in the biological sciences: fiscal years 1987-90 | 158 |
| B-62. | Total and federally financed for 100 largest R&D performers in the medical sciences: fiscal years 1987-90 | 160 |
| B-63. | Total and federally financed for 100 largest R&D performers in psychology: fiscal years 1987-90 | 162 |
| B-64. | For 100 largest R&D performers in the social sciences, with 1990 subfields differentiated: fiscal years 1987-90 | 164 |
| B-65. | For 100 largest federally financed R&D performers in the social sciences, with 1990 subfields differentiated: fiscal years 1987-90 | 166 |

CURRENT FUND EXPENDITURES FOR RESEARCH EQUIPMENT BY SCIENCE & ENGINEERING FIELD AND SOURCE OF FUNDS

| | | |
|-------|---|-----|
| B-66. | Summary for all institutions: fiscal years 1983, 1989, and 1990 | 168 |
| B-67. | Summary for doctorate-granting institutions: fiscal years 1983, 1989, and 1990 | 169 |
| B-68. | Summary for all public and private institutions: fiscal year 1990 | 170 |
| B-69. | Total and federally financed for 100 largest institutions ranked in descending order of amounts: fiscal years 1987-90 | 171 |

University-Administered Federally Funded Research and Development Centers

R&D EXPENDITURES AT UNIVERSITY-ADMINISTERED FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTERS

| | | |
|-------|--|-----|
| B-70. | Total R&D by year, character of work, and percent of total: fiscal years 1953-90 | 173 |
| B-71. | Total R&D by field of science & engineering: fiscal years 1983-90 | 174 |
| B-72. | Federally financed R&D by field of science & engineering: fiscal years 1983-90 | 175 |
| B-73. | R&D in descending order of amounts by field of science & engineering: fiscal year 1990 | 176 |
| B-74. | Total and federally financed R&D in descending order of amounts: fiscal years 1987-90 | 177 |

Table B-1. R&D expenditures at universities and colleges,
by source of funds: fiscal years 1953-90

(Dollars in millions)

| Fiscal year | Total | Source of funds | | | | |
|-------------|--------|--------------------|-----------------------------|----------|---------------------|-------------------|
| | | Federal Government | State and local governments | Industry | Institutional funds | All other sources |
| 1953 | 255 | 138 | 37 | 19 | 35 | 26 |
| 1954 | 290 | 160 | 42 | 22 | 38 | 28 |
| 1955 | 312 | 169 | 47 | 25 | 41 | 30 |
| 1956 | 372 | 213 | 53 | 29 | 43 | 34 |
| 1957 | 410 | 229 | 60 | 34 | 49 | 38 |
| 1958 | 456 | 254 | 68 | 39 | 53 | 42 |
| 1959 | 526 | 306 | 76 | 39 | 58 | 47 |
| 1960 | 646 | 405 | 85 | 40 | 64 | 52 |
| 1961 | 763 | 500 | 95 | 40 | 70 | 58 |
| 1962 | 904 | 613 | 106 | 40 | 79 | 66 |
| 1963 | 1,081 | 760 | 118 | 41 | 89 | 73 |
| 1964 | 1,275 | 917 | 132 | 40 | 103 | 83 |
| 1965 | 1,474 | 1,073 | 143 | 41 | 124 | 93 |
| 1966 | 1,715 | 1,261 | 156 | 42 | 148 | 108 |
| 1967 | 1,921 | 1,409 | 164 | 48 | 181 | 119 |
| 1968 | 2,149 | 1,572 | 172 | 55 | 218 | 132 |
| 1969 | 2,225 | 1,600 | 197 | 60 | 223 | 145 |
| 1970 | 2,335 | 1,647 | 219 | 61 | 243 | 165 |
| 1971 | 2,500 | 1,724 | 255 | 70 | 274 | 177 |
| 1972 | 2,630 | 1,795 | 269 | 74 | 305 | 187 |
| 1973 | 2,884 | 1,965 | 295 | 84 | 318 | 202 |
| 1974 | 3,022 | 2,032 | 308 | 95 | 368 | 219 |
| 1975 | 3,409 | 2,288 | 332 | 113 | 417 | 259 |
| 1976 | 3,729 | 2,512 | 364 | 123 | 446 | 285 |
| 1977 | 4,067 | 2,726 | 374 | 139 | 514 | 314 |
| 1978 1/ | 4,625 | 3,059 | 414 | 170 | 623 | 359 |
| 1979 | 5,380 | 3,604 | 476 | 194 | 738 | 368 |
| 1980 | 6,077 | 4,104 | 496 | 236 | 837 | 403 |
| 1981 | 6,846 | 4,565 | 511 | 291 | 1,008 | 436 |
| 1982 | 7,323 | 4,763 | 616 | 337 | 1,115 | 492 |
| 1983 | 7,877 | 4,983 | 626 | 388 | 1,303 | 577 |
| 1984 | 8,617 | 5,424 | 690 | 475 | 1,414 | 615 |
| 1985 | 9,687 | 6,057 | 754 | 559 | 1,622 | 695 |
| 1986 | 10,926 | 6,703 | 916 | 699 | 1,873 | 735 |
| 1987 | 12,154 | 7,333 | 1,024 | 789 | 2,176 | 831 |
| 1988 | 13,464 | 8,181 | 1,107 | 871 | 2,364 | 941 |
| 1989 | 15,009 | 8,984 | 1,234 | 998 | 2,712 | 1,081 |
| 1990 | 16,325 | 9,611 | 1,338 | 1,135 | 3,017 | 1,223 |

1/ Estimated, based on data collected from doctorate-granting institutions only.

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-2. R&D expenditures at universities and colleges,
by character of work: fiscal years 1953-90

[Dollars in millions]

| Fiscal year | Total | Character of work | | | |
|---------------|--------|-------------------|------------------|----------------------------------|------------------|
| | | Basic research | | Applied research and development | |
| | | Amount | Percent of total | Amount | Percent of total |
| 1953 | 255 | 110 | 43.1% | 145 | 56.9% |
| 1954 | 290 | 136 | 46.9 | 154 | 53.1 |
| 1955 | 312 | 159 | 51.0 | 153 | 49.0 |
| 1956 | 372 | 200 | 53.8 | 172 | 46.2 |
| 1957 | 410 | 240 | 58.5 | 170 | 41.5 |
| 1958 | 456 | 271 | 61.6 | 175 | 38.4 |
| 1959 | 526 | 343 | 65.2 | 183 | 34.8 |
| 1960 | 646 | 433 | 67.0 | 213 | 33.0 |
| 1961 | 763 | 536 | 70.2 | 227 | 29.8 |
| 1962 | 904 | 659 | 72.9 | 245 | 27.1 |
| 1963 | 1,081 | 814 | 75.3 | 267 | 24.7 |
| 1964 | 1,275 | 1,003 | 78.7 | 272 | 21.3 |
| 1965 | 1,474 | 1,138 | 77.2 | 336 | 22.8 |
| 1966 | 1,715 | 1,303 | 76.0 | 412 | 24.0 |
| 1967 | 1,921 | 1,457 | 75.8 | 464 | 24.2 |
| 1968 | 2,149 | 1,650 | 76.8 | 499 | 23.2 |
| 1969 | 2,225 | 1,711 | 76.9 | 514 | 23.1 |
| 1970 | 2,335 | 1,796 | 76.9 | 539 | 23.1 |
| 1971 | 2,500 | 1,914 | 76.6 | 586 | 23.4 |
| 1972 | 2,630 | 2,022 | 76.9 | 608 | 23.1 |
| 1973 | 2,884 | 2,053 | 71.2 | 831 | 28.8 |
| 1974 | 3,022 | 2,153 | 71.2 | 869 | 28.8 |
| 1975 | 3,409 | 2,410 | 70.7 | 999 | 29.3 |
| 1976 | 3,729 | 2,549 | 68.4 | 1,180 | 31.6 |
| 1977 | 4,067 | 2,800 | 68.8 | 1,267 | 31.2 |
| 1978 1/ | 4,625 | NA | NA | NA | NA |
| 1979 | 5,380 | 3,628 | 67.4 | 1,752 | 32.6 |
| 1980 | 6,077 | 4,042 | 66.5 | 2,034 | 33.5 |
| 1981 | 6,846 | 4,597 | 67.1 | 2,249 | 32.9 |
| 1982 | 7,323 | 4,882 | 66.7 | 2,441 | 33.3 |
| 1983 | 7,877 | 5,304 | 67.3 | 2,573 | 32.7 |
| 1984 | 8,617 | 5,735 | 66.6 | 2,882 | 33.4 |
| 1985 | 9,687 | 6,559 | 67.7 | 3,128 | 32.3 |
| 1986 | 10,926 | 7,495 | 68.6 | 3,431 | 31.4 |
| 1987 | 12,154 | 8,398 | 69.1 | 3,756 | 30.9 |
| 1988 | 13,464 | 8,827 | 65.6 | 4,637 | 34.4 |
| 1989 | 15,009 | 9,710 | 64.7 | 5,299 | 35.3 |
| 1990 | 16,325 | 10,431 | 63.9 | 5,894 | 36.1 |

1/ Data were not collected in fiscal year 1978.

NOTES: R&D expenditures by character of work are based on estimates provided by the universities and colleges for basic research.

NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-3. R&D expenditures at universities and colleges,
by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|------------|------------|------------|------------|------------|
| Total | 7,877,257 | 8,617,182 | 9,686,962 | 10,926,227 | 12,154,249 | 13,463,868 | 15,009,084 | 16,324,610 |
| Source of funds | | | | | | | | |
| Federal Government | 4,983,216 | 5,423,809 | 6,056,519 | 6,702,661 | 7,333,076 | 8,181,246 | 8,983,986 | 9,611,045 |
| State and local governments .. | 625,761 | 690,459 | 753,884 | 916,364 | 1,024,484 | 1,106,973 | 1,233,906 | 1,337,957 |
| Industry | 388,105 | 474,750 | 559,224 | 699,157 | 789,238 | 870,844 | 997,989 | 1,135,229 |
| Institutional funds | 1,303,207 | 1,413,508 | 1,622,311 | 1,873,089 | 2,176,047 | 2,363,823 | 2,712,145 | 3,017,284 |
| All other sources | 576,968 | 614,656 | 695,024 | 734,956 | 831,404 | 940,982 | 1,081,058 | 1,223,096 |
| Field | | | | | | | | |
| Engineering, total | 1,119,167 | 1,229,018 | 1,414,926 | 1,638,234 | 1,891,716 | 2,096,863 | 2,403,788 | 2,681,751 |
| Aeronautical and astronautical | 69,883 | 71,768 | 82,133 | 93,400 | 109,876 | 124,442 | 144,999 | 159,885 |
| Chemical | 91,217 | 96,162 | 109,872 | 126,318 | 140,753 | 154,439 | 185,330 | 206,172 |
| Civil | 126,651 | 139,893 | 153,530 | 179,270 | 193,044 | 227,961 | 251,336 | 289,746 |
| Electrical | 261,709 | 294,659 | 337,220 | 394,551 | 450,515 | 508,992 | 600,252 | 664,610 |
| Mechanical | 149,155 | 178,875 | 207,600 | 227,981 | 274,904 | 303,667 | 344,056 | 393,238 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 275,925 |
| Other, n.e.c. | 420,552 | 447,661 | 524,571 | 616,714 | 722,624 | 777,362 | 877,816 | 692,175 |
| All sciences, total | 6,758,090 | 7,388,164 | 8,272,036 | 9,287,993 | 10,262,533 | 11,367,005 | 12,605,296 | 13,642,859 |
| Physical sciences | 899,691 | 999,674 | 1,147,737 | 1,285,979 | 1,389,007 | 1,544,962 | 1,640,754 | 1,781,108 |
| Astronomy | 73,442 | 80,474 | 96,083 | 101,795 | 108,429 | 126,764 | 136,608 | 165,464 |
| Chemistry | 334,981 | 371,487 | 421,030 | 469,286 | 513,116 | 565,293 | 608,029 | 649,432 |
| Physics | 417,034 | 473,590 | 550,831 | 630,240 | 664,619 | 730,435 | 773,673 | 834,258 |
| Other, n.e.c. | 74,234 | 74,123 | 79,793 | 84,658 | 102,843 | 122,470 | 122,444 | 131,953 |
| Environmental sciences | 615,985 | 644,134 | 703,467 | 772,990 | 831,303 | 885,093 | 989,007 | 1,047,299 |
| Atmospheric | 98,368 | 101,795 | 107,534 | 119,948 | 128,291 | 133,668 | 162,589 | 167,313 |
| Earth sciences | 215,976 | 227,550 | 253,770 | 274,416 | 283,919 | 294,431 | 322,480 | 354,599 |
| Oceanography | 223,931 | 236,784 | 257,973 | 279,992 | 299,949 | 333,282 | 357,681 | 375,417 |
| Other, n.e.c. | 77,710 | 78,005 | 84,190 | 98,634 | 119,144 | 123,712 | 146,257 | 149,970 |
| Mathematical sciences | 106,440 | 123,262 | 128,030 | 151,903 | 176,872 | 199,104 | 214,631 | 221,297 |
| Computer sciences | 187,103 | 224,672 | 282,755 | 322,906 | 373,114 | 410,157 | 468,270 | 502,623 |
| Life sciences | 4,303,614 | 4,712,918 | 5,282,145 | 5,892,773 | 6,532,850 | 7,255,727 | 8,087,563 | 8,763,473 |
| Agricultural sciences .. | 921,445 | 954,565 | 999,674 | 1,089,949 | 1,121,465 | 1,177,253 | 1,287,075 | 1,350,591 |
| Biological sciences | 1,415,120 | 1,568,001 | 1,775,154 | 1,938,540 | 2,132,774 | 2,387,569 | 2,629,966 | 2,844,472 |
| Medical sciences | 1,835,875 | 2,040,616 | 2,327,268 | 2,625,341 | 3,015,867 | 3,387,734 | 3,843,241 | 4,196,183 |
| Other, n.e.c. | 131,174 | 149,736 | 180,049 | 238,943 | 262,744 | 303,171 | 327,281 | 372,226 |
| Psychology | 135,735 | 145,594 | 158,606 | 170,779 | 187,957 | 214,063 | 238,033 | 259,555 |
| Social sciences | 344,743 | 358,409 | 382,932 | 462,553 | 502,172 | 553,156 | 636,613 | 702,175 |
| Economics | 98,088 | 108,494 | 117,988 | 135,766 | 149,685 | 164,138 | 189,346 | 203,191 |
| Political science | 54,624 | 56,110 | 59,379 | 68,835 | 81,221 | 87,000 | 103,255 | 111,545 |
| Sociology | 77,347 | 69,885 | 74,752 | 96,441 | 96,325 | 109,691 | 121,324 | 134,010 |
| Other, n.e.c. | 114,684 | 123,920 | 130,813 | 161,511 | 174,941 | 192,327 | 222,688 | 253,429 |
| Other sciences, n.e.c. | 164,779 | 179,501 | 186,364 | 228,110 | 269,258 | 304,743 | 330,424 | 365,330 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

BEST COPY AVAILABLE

Table B-4. Federally financed R&D expenditures at universities and colleges,
by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 4,983,216 | 5,423,809 | 6,056,519 | 6,702,661 | 7,333,076 | 8,181,246 | 8,983,986 | 9,611,045 |
| Engineering, total | 733,300 | 786,778 | 865,371 | 975,860 | 1,112,122 | 1,229,568 | 1,300,080 | 1,534,931 |
| Aeronautical and astronautical | 56,190 | 56,973 | 64,507 | 73,583 | 83,550 | 96,867 | 111,768 | 123,477 |
| Chemical | 52,533 | 54,856 | 58,342 | 67,575 | 69,567 | 77,980 | 92,960 | 99,937 |
| Civil | 63,853 | 72,662 | 79,250 | 89,087 | 91,039 | 105,083 | 105,062 | 119,250 |
| Electrical | 193,188 | 209,274 | 228,336 | 260,157 | 291,870 | 330,072 | 388,904 | 430,589 |
| Mechanical | 100,242 | 118,951 | 134,010 | 147,900 | 178,278 | 192,474 | 212,565 | 238,464 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 143,822 |
| Other, n.e.c. | 267,294 | 274,062 | 300,726 | 337,558 | 397,818 | 427,092 | 473,821 | 379,394 |
| All sciences, total | 4,249,916 | 4,637,031 | 5,191,148 | 5,726,801 | 6,220,954 | 6,951,678 | 7,598,906 | 8,076,113 |
| Physical sciences | 699,469 | 781,663 | 889,934 | 982,159 | 1,045,904 | 1,151,635 | 1,192,890 | 1,290,163 |
| Astronomy | 49,916 | 53,181 | 64,393 | 69,686 | 71,189 | 83,744 | 87,439 | 108,835 |
| Chemistry | 247,342 | 279,052 | 312,545 | 338,036 | 367,765 | 402,724 | 421,712 | 443,402 |
| Physics | 342,500 | 390,041 | 453,121 | 510,291 | 529,730 | 573,726 | 598,065 | 647,466 |
| Other, n.e.c. | 59,711 | 59,389 | 59,875 | 64,146 | 77,220 | 91,441 | 85,675 | 90,459 |
| Environmental sciences | 425,593 | 445,049 | 472,755 | 515,178 | 541,062 | 583,152 | 647,844 | 674,129 |
| Atmospheric | 77,128 | 82,171 | 85,872 | 97,459 | 105,820 | 109,218 | 127,842 | 127,487 |
| Earth sciences | 134,734 | 139,756 | 153,980 | 160,062 | 159,500 | 174,514 | 186,106 | 204,909 |
| Oceanography | 171,542 | 180,949 | 187,666 | 208,063 | 217,702 | 238,508 | 265,923 | 267,720 |
| Other, n.e.c. | 42,189 | 42,173 | 45,237 | 49,584 | 58,040 | 60,912 | 67,973 | 74,013 |
| Mathematical sciences | 76,473 | 92,304 | 97,011 | 114,368 | 131,378 | 149,259 | 155,989 | 158,688 |
| Computer sciences | 138,881 | 162,847 | 195,614 | 232,517 | 257,121 | 289,014 | 317,911 | 333,615 |
| Life sciences | 2,586,089 | 2,826,860 | 3,183,998 | 3,487,855 | 3,829,866 | 4,318,061 | 4,779,911 | 5,067,946 |
| Agricultural sciences .. | 261,459 | 268,867 | 293,999 | 292,378 | 297,543 | 322,561 | 348,373 | 348,133 |
| Biological sciences | 983,062 | 1,089,460 | 1,204,827 | 1,305,921 | 1,411,778 | 1,594,451 | 1,726,766 | 1,832,765 |
| Medical sciences | 1,261,446 | 1,374,159 | 1,576,816 | 1,742,881 | 1,963,335 | 2,214,392 | 2,506,673 | 2,667,710 |
| Other, n.e.c. | 80,122 | 94,374 | 108,356 | 146,675 | 157,210 | 186,657 | 198,099 | 219,340 |
| Psychology | 89,716 | 98,178 | 106,252 | 114,436 | 124,286 | 140,951 | 156,559 | 169,380 |
| Social sciences | 146,905 | 143,053 | 153,730 | 172,835 | 168,258 | 188,395 | 211,244 | 225,434 |
| Economics | 38,783 | 42,392 | 43,692 | 45,448 | 43,423 | 49,168 | 54,408 | 54,469 |
| Political science | 20,100 | 19,049 | 19,792 | 20,291 | 24,128 | 25,114 | 25,564 | 24,896 |
| Sociology | 42,924 | 37,928 | 39,874 | 49,425 | 44,653 | 48,371 | 53,646 | 59,769 |
| Other, n.e.c. | 45,098 | 43,684 | 50,372 | 57,671 | 56,054 | 65,742 | 77,627 | 86,300 |
| Other sciences, n.e.c. | 86,790 | 87,077 | 91,854 | 107,453 | 123,079 | 131,211 | 136,558 | 156,759 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-5. Non-Federal R&D expenditures at universities and colleges,
by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total non-Federal | 2,894,041 | 3,193,373 | 3,630,443 | 4,223,566 | 4,821,173 | 5,282,622 | 6,025,098 | 6,713,565 |
| Source of funds | | | | | | | | |
| State and local governments .. | 625,761 | 690,459 | 753,884 | 916,364 | 1,024,484 | 1,106,973 | 1,233,906 | 1,337,957 |
| Industry | 388,105 | 474,750 | 559,224 | 699,157 | 789,238 | 870,844 | 997,989 | 1,135,229 |
| Institutional funds | 1,303,207 | 1,413,508 | 1,622,311 | 1,873,089 | 2,176,047 | 2,363,823 | 2,712,145 | 3,017,284 |
| All other sources | 576,968 | 614,656 | 695,024 | 734,956 | 831,404 | 940,982 | 1,081,058 | 1,223,096 |
| Field | | | | | | | | |
| Engineering, total | 385,867 | 442,240 | 549,555 | 662,374 | 779,594 | 867,295 | 1,018,708 | 1,146,820 |
| Aeronautical and astronautical | 13,693 | 14,795 | 17,626 | 19,817 | 26,326 | 27,575 | 33,231 | 36,409 |
| Chemical | 38,684 | 41,306 | 51,330 | 58,743 | 71,186 | 76,459 | 92,369 | 106,235 |
| Civil | 62,798 | 67,231 | 74,280 | 90,183 | 102,005 | 122,878 | 146,274 | 170,497 |
| Electrical | 68,521 | 85,385 | 108,884 | 134,394 | 158,645 | 178,920 | 211,347 | 234,021 |
| Mechanical | 48,913 | 59,924 | 73,590 | 80,081 | 96,626 | 111,193 | 131,491 | 154,775 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 132,102 |
| Other, n.e.c. | 153,258 | 173,599 | 223,845 | 279,156 | 324,806 | 350,270 | 403,995 | 312,781 |
| All sciences, total | 2,508,174 | 2,751,133 | 3,080,888 | 3,561,192 | 4,041,579 | 4,415,327 | 5,006,390 | 5,566,745 |
| Physical sciences | 200,222 | 218,011 | 257,803 | 303,820 | 343,103 | 393,327 | 447,863 | 490,945 |
| Astronomy | 23,526 | 27,293 | 31,690 | 32,109 | 37,240 | 43,320 | 49,169 | 56,629 |
| Chemistry | 87,639 | 92,435 | 108,485 | 131,250 | 145,351 | 162,369 | 186,318 | 206,030 |
| Physics | 74,534 | 85,549 | 97,710 | 119,949 | 134,889 | 156,709 | 175,608 | 186,792 |
| Other, n.e.c. | 14,523 | 14,734 | 19,918 | 20,512 | 25,623 | 31,029 | 36,769 | 41,494 |
| Environmental sciences | 190,392 | 199,085 | 230,712 | 257,812 | 290,241 | 301,941 | 341,164 | 373,170 |
| Atmospheric | 21,240 | 19,624 | 21,662 | 22,479 | 22,471 | 24,450 | 34,747 | 39,826 |
| Earth sciences | 81,242 | 87,794 | 99,790 | 114,354 | 124,419 | 119,917 | 136,374 | 149,690 |
| Oceanography | 52,389 | 55,835 | 70,307 | 71,929 | 82,247 | 94,774 | 91,758 | 107,697 |
| Other, n.e.c. | 35,521 | 35,832 | 38,953 | 49,050 | 61,104 | 62,800 | 78,285 | 75,957 |
| Mathematical sciences | 29,967 | 30,958 | 31,019 | 37,535 | 45,494 | 49,845 | 58,641 | 62,609 |
| Computer sciences | 48,222 | 61,825 | 87,141 | 90,389 | 115,993 | 121,143 | 150,359 | 169,009 |
| Life sciences | 1,717,525 | 1,886,058 | 2,098,147 | 2,404,918 | 2,702,984 | 2,937,666 | 3,307,652 | 3,695,526 |
| Agricultural sciences .. | 659,986 | 685,698 | 705,675 | 797,571 | 823,922 | 854,692 | 938,703 | 1,002,458 |
| Biological sciences | 632,058 | 478,541 | 570,327 | 632,619 | 720,996 | 793,118 | 903,201 | 1,011,707 |
| Medical sciences | 574,429 | 666,457 | 750,452 | 882,460 | 1,052,532 | 1,173,342 | 1,336,567 | 1,528,474 |
| Other, n.e.c. | 51,052 | 55,362 | 71,693 | 92,268 | 105,534 | 116,514 | 129,182 | 152,887 |
| Psychology | 46,019 | 47,416 | 52,354 | 56,343 | 63,671 | 73,112 | 81,474 | 90,175 |
| Social sciences | 197,838 | 215,356 | 229,202 | 289,718 | 333,914 | 364,761 | 425,369 | 476,741 |
| Economics | 59,305 | 66,102 | 74,296 | 90,318 | 106,262 | 114,970 | 134,938 | 148,722 |
| Political science | 34,524 | 37,061 | 39,587 | 48,544 | 57,093 | 61,886 | 77,691 | 86,848 |
| Sociology | 34,423 | 31,957 | 34,878 | 47,016 | 51,672 | 61,320 | 67,679 | 74,242 |
| Other, n.e.c. | 69,586 | 80,236 | 80,441 | 103,840 | 118,887 | 126,585 | 145,061 | 167,129 |
| Other sciences, n.e.c. | 77,989 | 92,424 | 94,510 | 120,657 | 146,179 | 173,532 | 193,866 | 208,571 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-6. R&D expenditures at doctorate-granting institutions,
by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|------------|------------|------------|------------|------------|
| Total | 7,755,419 | 8,483,497 | 9,544,538 | 10,769,576 | 11,997,969 | 13,286,901 | 14,762,275 | 16,057,003 |
| Source of funds | | | | | | | | |
| Federal Government | 4,905,224 | 5,336,924 | 5,962,822 | 6,600,405 | 7,235,732 | 8,070,152 | 8,836,691 | 9,453,757 |
| State and local governments .. | 613,446 | 677,504 | 740,262 | 901,143 | 1,006,898 | 1,088,892 | 1,202,546 | 1,298,659 |
| Industry | 380,486 | 465,818 | 549,842 | 687,782 | 776,507 | 856,855 | 977,729 | 1,114,503 |
| Institutional funds | 1,286,310 | 1,396,699 | 1,605,039 | 1,854,909 | 2,157,689 | 2,340,821 | 2,680,475 | 2,982,116 |
| All other sources | 569,953 | 606,552 | 686,573 | 725,337 | 821,143 | 930,181 | 1,064,834 | 1,207,968 |
| Field | | | | | | | | |
| Engineering, total | 1,108,379 | 1,215,966 | 1,398,932 | 1,619,133 | 1,870,639 | 2,070,556 | 2,368,226 | 2,638,425 |
| Aeronautical and astronautical | 69,136 | 69,987 | 79,867 | 90,635 | 106,646 | 120,252 | 142,544 | 158,127 |
| Chemical | 90,982 | 95,918 | 109,630 | 126,028 | 140,200 | 153,270 | 183,624 | 204,413 |
| Civil | 124,436 | 137,810 | 151,135 | 176,629 | 190,303 | 224,449 | 246,813 | 285,164 |
| Electrical | 259,299 | 291,804 | 333,654 | 390,228 | 445,773 | 503,027 | 589,092 | 653,694 |
| Mechanical | 147,310 | 176,764 | 204,589 | 224,244 | 270,651 | 299,167 | 337,781 | 384,973 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 273,818 |
| Other, n.e.c. | 417,216 | 443,683 | 520,057 | 611,369 | 717,066 | 770,391 | 868,372 | 678,236 |
| All sciences, total | 6,647,040 | 7,267,531 | 8,145,606 | 9,150,443 | 10,127,330 | 11,216,345 | 12,394,049 | 13,418,578 |
| Physical sciences | 880,342 | 978,224 | 1,122,949 | 1,258,055 | 1,359,660 | 1,512,263 | 1,601,481 | 1,736,378 |
| Astronomy | 72,714 | 79,768 | 95,478 | 101,191 | 107,840 | 126,037 | 136,571 | 165,415 |
| Chemistry | 323,392 | 358,500 | 406,455 | 453,435 | 497,702 | 546,814 | 584,346 | 623,795 |
| Physics | 410,546 | 466,371 | 541,946 | 620,625 | 653,249 | 718,653 | 760,517 | 816,633 |
| Other, n.e.c. | 73,690 | 73,585 | 79,070 | 82,804 | 100,869 | 120,759 | 120,047 | 130,535 |
| Environmental sciences | 600,646 | 628,810 | 686,336 | 754,988 | 812,338 | 866,997 | 959,434 | 1,013,979 |
| Atmospheric | 95,862 | 99,594 | 105,108 | 117,481 | 125,327 | 130,291 | 153,238 | 158,057 |
| Earth sciences | 210,550 | 222,788 | 248,909 | 269,118 | 278,206 | 289,431 | 318,663 | 347,106 |
| Oceanography | 220,552 | 232,432 | 254,173 | 276,208 | 296,123 | 330,184 | 346,189 | 363,756 |
| Other, n.e.c. | 73,682 | 73,996 | 78,146 | 92,181 | 112,682 | 117,091 | 141,344 | 145,060 |
| Mathematical sciences | 102,868 | 119,160 | 124,366 | 147,713 | 173,579 | 195,524 | 210,235 | 216,439 |
| Computer sciences | 184,507 | 220,626 | 277,673 | 316,858 | 365,348 | 401,114 | 460,482 | 494,418 |
| Life sciences | 4,257,899 | 4,661,673 | 5,228,891 | 5,835,960 | 6,480,551 | 7,190,856 | 7,988,817 | 8,666,523 |
| Agricultural sciences .. | 899,930 | 930,307 | 975,726 | 1,064,603 | 1,098,531 | 1,151,721 | 1,246,862 | 1,309,874 |
| Biological sciences | 1,394,072 | 1,544,481 | 1,750,123 | 1,912,650 | 2,108,537 | 2,353,999 | 2,577,521 | 2,791,534 |
| Medical sciences | 1,834,943 | 2,039,253 | 2,325,329 | 2,622,657 | 3,013,040 | 3,384,826 | 3,838,749 | 4,194,137 |
| Other, n.e.c. | 129,054 | 147,632 | 177,713 | 236,050 | 260,443 | 300,310 | 325,685 | 370,978 |
| Psychology | 131,863 | 141,480 | 154,130 | 166,009 | 182,701 | 207,806 | 227,299 | 245,018 |
| Social sciences | 327,085 | 340,542 | 367,719 | 446,155 | 487,947 | 539,874 | 619,320 | 686,246 |
| Economics | 94,979 | 103,233 | 115,129 | 133,443 | 147,485 | 161,491 | 185,875 | 199,356 |
| Political science | 52,828 | 54,328 | 57,593 | 67,057 | 79,754 | 85,448 | 102,066 | 110,110 |
| Sociology | 71,156 | 64,694 | 69,765 | 91,858 | 92,122 | 106,652 | 116,649 | 130,174 |
| Other, n.e.c. | 108,122 | 118,287 | 125,232 | 153,797 | 168,586 | 186,283 | 214,730 | 246,606 |
| Other sciences, n.e.c. | 161,830 | 177,016 | 183,542 | 224,705 | 265,206 | 301,911 | 326,981 | 359,577 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table 8-7. Federally financed R&D expenditures at doctorate-granting institutions,
by science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 4,905,224 | 5,336,924 | 5,962,822 | 6,600,405 | 7,235,732 | 8,070,152 | 8,836,691 | 9,453,757 |
| Engineering, total | 727,040 | 779,778 | 856,535 | 965,325 | 1,100,997 | 1,215,968 | 1,367,531 | 1,513,915 |
| Aeronautical and astronautical | 55,565 | 55,445 | 62,477 | 71,085 | 80,625 | 93,087 | 109,749 | 122,017 |
| Chemical | 52,471 | 54,766 | 58,456 | 67,439 | 69,346 | 77,261 | 91,815 | 99,044 |
| Civil | 62,326 | 71,271 | 77,702 | 87,480 | 89,399 | 102,966 | 103,871 | 118,464 |
| Electrical | 191,916 | 208,002 | 226,735 | 258,343 | 290,034 | 327,907 | 382,532 | 423,664 |
| Mechanical | 99,091 | 117,863 | 132,275 | 145,607 | 175,785 | 189,871 | 209,504 | 233,735 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 141,976 |
| Other, n.e.c. | 265,671 | 272,431 | 298,890 | 335,371 | 395,808 | 424,876 | 470,060 | 375,015 |
| All sciences, total | 4,178,184 | 4,557,146 | 5,106,287 | 5,635,080 | 6,134,735 | 6,854,184 | 7,469,160 | 7,939,842 |
| Physical sciences | 687,141 | 767,343 | 872,848 | 963,310 | 1,026,094 | 1,129,545 | 1,167,233 | 1,261,808 |
| Astronomy | 49,439 | 52,667 | 63,919 | 69,291 | 70,798 | 83,225 | 87,422 | 108,805 |
| Chemistry | 240,476 | 270,571 | 302,661 | 327,044 | 357,461 | 389,779 | 406,998 | 428,016 |
| Physics | 337,731 | 384,966 | 446,656 | 503,304 | 521,306 | 565,691 | 588,323 | 635,159 |
| Other, n.e.c. | 59,495 | 59,139 | 59,612 | 63,671 | 76,529 | 90,850 | 84,490 | 89,828 |
| Environmental sciences | 416,015 | 435,209 | 461,827 | 503,709 | 529,401 | 571,147 | 625,370 | 651,714 |
| Atmospheric | 74,738 | 80,018 | 83,606 | 95,164 | 102,991 | 106,059 | 119,140 | 119,230 |
| Earth sciences | 131,357 | 137,445 | 151,588 | 157,461 | 156,522 | 172,003 | 184,087 | 201,642 |
| Oceanography | 170,292 | 178,361 | 185,800 | 206,295 | 216,097 | 236,779 | 256,879 | 259,000 |
| Other, n.e.c. | 39,628 | 39,385 | 40,833 | 44,789 | 53,791 | 56,306 | 65,264 | 71,842 |
| Mathematical sciences | 74,301 | 90,089 | 94,359 | 111,590 | 129,164 | 146,906 | 153,556 | 156,392 |
| Computer sciences | 137,689 | 160,587 | 192,412 | 228,493 | 252,028 | 282,527 | 313,675 | 329,922 |
| Life sciences | 2,551,668 | 2,789,340 | 3,144,834 | 3,446,823 | 3,794,616 | 4,275,071 | 4,719,621 | 5,007,314 |
| Agricultural sciences .. | 243,754 | 249,466 | 274,957 | 272,340 | 280,849 | 302,906 | 322,291 | 321,259 |
| Biological sciences | 968,499 | 1,073,985 | 1,187,918 | 1,289,203 | 1,396,811 | 1,575,023 | 1,696,979 | 1,800,810 |
| Medical sciences | 1,260,910 | 1,373,183 | 1,575,369 | 1,740,837 | 1,961,229 | 2,212,460 | 2,502,627 | 2,666,460 |
| Other, n.e.c. | 78,505 | 92,706 | 106,590 | 144,443 | 155,727 | 184,682 | 197,724 | 218,785 |
| Psychology | 87,149 | 95,480 | 103,175 | 111,021 | 120,441 | 136,275 | 148,318 | 157,839 |
| Social sciences | 139,332 | 133,811 | 146,678 | 164,829 | 162,663 | 182,862 | 205,895 | 219,950 |
| Economics | 36,687 | 38,294 | 42,045 | 44,489 | 42,675 | 48,131 | 53,543 | 53,370 |
| Political science | 19,368 | 18,182 | 18,869 | 19,312 | 23,512 | 24,467 | 25,308 | 24,665 |
| Sociology | 40,102 | 35,177 | 37,309 | 47,056 | 42,362 | 46,923 | 52,353 | 58,464 |
| Other, n.e.c. | 43,175 | 42,158 | 48,455 | 53,972 | 54,114 | 63,341 | 74,691 | 83,451 |
| Other sciences, n.e.c. | 84,889 | 85,287 | 90,154 | 105,305 | 120,328 | 129,851 | 135,492 | 154,903 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-8. Non-Federal R&D expenditures at doctorate-granting institutions, by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total non-Federal | 2,850,195 | 3,146,573 | 3,581,716 | 4,169,171 | 4,762,237 | 5,216,749 | 5,925,584 | 6,603,246 |
| Source of funds | | | | | | | | |
| State and local governments .. | 613,446 | 677,504 | 740,262 | 901,143 | 1,006,898 | 1,088,892 | 1,202,546 | 1,298,659 |
| Industry | 380,486 | 465,818 | 549,842 | 687,782 | 776,507 | 856,855 | 977,729 | 1,114,503 |
| Institutional funds | 1,286,310 | 1,396,699 | 1,605,039 | 1,854,909 | 2,157,689 | 2,340,821 | 2,680,475 | 2,982,116 |
| All other sources | 569,953 | 606,552 | 686,573 | 725,337 | 821,143 | 930,181 | 1,064,834 | 1,207,968 |
| Field | | | | | | | | |
| Engineering, total | 381,339 | 436,188 | 542,397 | 653,808 | 769,642 | 854,588 | 1,000,695 | 1,124,510 |
| Aeronautical and astronautical | 13,571 | 14,542 | 17,390 | 19,550 | 26,021 | 27,165 | 32,795 | 36,110 |
| Chemical | 38,511 | 41,152 | 51,174 | 58,589 | 70,854 | 76,009 | 91,809 | 105,369 |
| Civil | 62,110 | 66,539 | 73,433 | 89,149 | 100,904 | 121,483 | 142,942 | 166,700 |
| Electrical | 67,383 | 83,802 | 106,919 | 131,885 | 155,739 | 175,120 | 206,560 | 230,030 |
| Mechanical | 48,219 | 58,901 | 72,314 | 78,637 | 94,866 | 109,295 | 128,277 | 151,238 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 131,842 |
| Other, n.e.c. | 151,545 | 171,252 | 221,167 | 275,998 | 321,258 | 345,515 | 398,312 | 303,221 |
| All sciences, total | 2,468,856 | 2,710,385 | 3,039,319 | 3,515,363 | 3,992,595 | 4,362,161 | 4,924,889 | 5,478,736 |
| Physical sciences | 193,201 | 210,881 | 250,101 | 294,745 | 333,566 | 382,718 | 434,248 | 474,570 |
| Astronomy | 23,275 | 27,101 | 31,559 | 31,900 | 37,042 | 42,812 | 49,149 | 56,610 |
| Chemistry | 82,916 | 87,929 | 103,794 | 126,391 | 140,241 | 157,035 | 177,348 | 193,779 |
| Physics | 72,815 | 81,405 | 95,290 | 117,321 | 131,943 | 152,962 | 172,194 | 181,474 |
| Other, n.e.c. | 14,195 | 14,446 | 19,458 | 19,133 | 24,340 | 29,909 | 35,557 | 40,707 |
| Environmental sciences | 184,631 | 193,601 | 224,509 | 251,279 | 282,937 | 295,850 | 334,064 | 362,265 |
| Atmospheric | 21,124 | 19,576 | 21,502 | 22,317 | 22,336 | 24,232 | 34,098 | 38,827 |
| Earth sciences | 79,193 | 85,343 | 97,321 | 111,657 | 121,684 | 117,428 | 134,576 | 145,464 |
| Oceanography | 50,260 | 54,071 | 68,373 | 69,913 | 80,026 | 93,405 | 89,310 | 104,756 |
| Other, n.e.c. | 34,054 | 34,611 | 37,313 | 47,392 | 58,891 | 60,785 | 76,080 | 73,218 |
| Mathematical sciences | 28,567 | 29,071 | 30,007 | 36,123 | 44,415 | 48,618 | 56,679 | 60,047 |
| Computer sciences | 46,818 | 60,039 | 85,261 | 88,365 | 113,320 | 118,587 | 146,807 | 164,496 |
| Life sciences | 1,706,231 | 1,872,333 | 2,084,057 | 2,389,137 | 2,685,935 | 2,915,785 | 3,269,196 | 3,659,209 |
| Agricultural sciences .. | 656,076 | 680,841 | 700,769 | 792,263 | 817,682 | 848,815 | 924,571 | 988,615 |
| Biological sciences | 425,573 | 470,496 | 562,205 | 623,447 | 711,726 | 778,976 | 880,342 | 990,724 |
| Medical sciences | 574,033 | 666,070 | 749,960 | 881,820 | 1,051,811 | 1,172,366 | 1,336,122 | 1,527,677 |
| Other, n.e.c. | 50,549 | 54,926 | 71,123 | 91,607 | 104,716 | 115,628 | 127,961 | 152,193 |
| Psychology | 44,714 | 46,000 | 50,955 | 54,988 | 62,260 | 71,531 | 78,981 | 87,179 |
| Social sciences | 187,753 | 206,731 | 221,041 | 281,326 | 325,284 | 357,012 | 413,425 | 466,296 |
| Economics | 58,292 | 64,939 | 73,084 | 88,954 | 104,810 | 113,360 | 132,332 | 145,986 |
| Political science | 33,460 | 36,146 | 38,724 | 47,745 | 56,242 | 60,981 | 76,758 | 85,445 |
| Sociology | 31,054 | 29,517 | 32,456 | 44,802 | 49,760 | 59,729 | 64,296 | 71,710 |
| Other, n.e.c. | 64,947 | 76,129 | 76,777 | 99,825 | 114,472 | 122,942 | 140,039 | 163,155 |
| Other sciences, n.e.c. | 76,941 | 91,729 | 93,388 | 119,400 | 144,878 | 172,060 | 191,489 | 204,674 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-9. R&D expenditures at public universities and colleges,
by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| Total | 5,104,878 | 5,578,608 | 6,282,409 | 7,105,379 | 7,896,868 | 8,763,152 | 9,844,858 | 10,799,382 |
| Source of funds | | | | | | | | |
| Federal Government | 2,861,240 | 3,110,414 | 3,480,966 | 3,829,884 | 4,168,377 | 4,699,781 | 5,194,438 | 5,608,210 |
| State and local governments .. | 572,676 | 632,165 | 685,611 | 832,647 | 927,345 | 995,847 | 1,108,099 | 1,202,903 |
| Industry | 243,046 | 285,044 | 341,456 | 439,157 | 493,429 | 545,271 | 636,466 | 738,248 |
| Institutional funds | 1,069,772 | 1,169,381 | 1,332,607 | 1,553,957 | 1,809,696 | 1,962,882 | 2,261,354 | 2,519,826 |
| All other sources | 358,144 | 381,604 | 441,771 | 449,734 | 498,021 | 559,371 | 644,501 | 730,195 |
| Field | | | | | | | | |
| Engineering, total | 676,188 | 733,396 | 849,235 | 1,002,243 | 1,167,069 | 1,334,802 | 1,563,704 | 1,793,870 |
| Aeronautical and astronautical | 32,702 | 33,468 | 39,593 | 43,453 | 54,533 | 68,435 | 78,589 | 90,899 |
| Chemical | 58,612 | 59,471 | 69,201 | 77,578 | 84,379 | 94,178 | 112,554 | 134,336 |
| Civil | 99,709 | 107,650 | 115,587 | 138,709 | 146,667 | 173,012 | 199,310 | 235,933 |
| Electrical | 146,232 | 159,811 | 181,075 | 217,688 | 250,216 | 298,321 | 364,230 | 408,396 |
| Mechanical | 77,668 | 92,266 | 113,798 | 128,570 | 156,894 | 183,967 | 207,136 | 245,555 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 202,080 |
| Other, n.e.c. | 261,265 | 280,730 | 329,981 | 396,245 | 474,380 | 516,889 | 601,885 | 476,672 |
| All sciences, total | 4,428,690 | 4,845,212 | 5,433,174 | 6,103,136 | 6,729,799 | 7,428,350 | 8,281,154 | 9,005,512 |
| Physical sciences | 518,049 | 589,395 | 680,965 | 752,402 | 826,869 | 926,579 | 1,012,085 | 1,101,083 |
| Astronomy | 53,376 | 57,672 | 65,797 | 69,560 | 76,175 | 88,361 | 95,772 | 113,611 |
| Chemistry | 211,011 | 236,090 | 267,593 | 296,723 | 329,518 | 361,737 | 391,485 | 416,856 |
| Physics | 223,678 | 262,884 | 313,218 | 348,778 | 370,863 | 414,819 | 455,082 | 495,930 |
| Other, n.e.c. | 29,984 | 32,749 | 34,357 | 37,341 | 50,313 | 61,662 | 69,745 | 74,686 |
| Environmental sciences | 441,402 | 466,875 | 520,489 | 581,576 | 629,345 | 660,738 | 723,581 | 785,486 |
| Atmospheric | 76,913 | 78,719 | 88,012 | 100,121 | 108,433 | 106,860 | 125,499 | 133,525 |
| Earth sciences | 155,718 | 165,484 | 183,898 | 202,241 | 207,508 | 212,335 | 231,111 | 256,333 |
| Oceanography | 163,439 | 174,508 | 194,124 | 213,067 | 233,683 | 262,149 | 271,816 | 298,476 |
| Other, n.e.c. | 45,332 | 48,164 | 54,455 | 66,147 | 79,721 | 79,394 | 95,155 | 97,153 |
| Mathematical sciences | 58,181 | 66,017 | 67,388 | 83,032 | 99,352 | 108,455 | 120,662 | 128,405 |
| Computer sciences | 80,341 | 93,484 | 123,956 | 140,827 | 167,689 | 171,971 | 205,165 | 235,603 |
| Life sciences | 2,862,064 | 3,140,571 | 3,510,667 | 3,907,660 | 4,291,826 | 4,763,100 | 5,334,221 | 5,761,745 |
| Agricultural sciences .. | 895,676 | 923,526 | 964,130 | 1,051,378 | 1,081,046 | 1,133,591 | 1,238,815 | 1,302,569 |
| Biological sciences | 854,528 | 965,988 | 1,120,422 | 1,222,202 | 1,320,534 | 1,480,554 | 1,640,314 | 1,773,350 |
| Medical sciences | 1,041,546 | 1,165,850 | 1,318,938 | 1,479,816 | 1,719,713 | 1,962,813 | 2,251,236 | 2,458,377 |
| Other, n.e.c. | 70,314 | 85,207 | 107,177 | 154,264 | 170,533 | 186,142 | 203,856 | 227,448 |
| Psychology | 91,052 | 95,581 | 106,979 | 113,847 | 123,426 | 140,651 | 159,573 | 174,828 |
| Social sciences | 249,805 | 262,887 | 280,328 | 339,544 | 362,698 | 403,225 | 459,077 | 523,490 |
| Economics | 75,325 | 83,448 | 91,820 | 106,794 | 114,256 | 120,285 | 139,125 | 152,352 |
| Political science | 37,933 | 37,948 | 41,036 | 45,822 | 49,998 | 52,302 | 60,891 | 71,767 |
| Sociology | 54,690 | 46,386 | 48,765 | 60,560 | 58,272 | 71,794 | 80,814 | 94,760 |
| Other, n.e.c. | 81,857 | 95,105 | 98,707 | 126,368 | 140,172 | 158,844 | 178,248 | 204,610 |
| Other sciences, n.e.c. | 127,796 | 130,402 | 142,402 | 184,248 | 228,594 | 253,631 | 266,791 | 294,871 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-10. Federally financed R&D expenditures at public universities and colleges,
by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 2,861,240 | 3,110,414 | 3,480,966 | 3,829,884 | 4,168,377 | 4,699,781 | 5,194,438 | 5,608,210 |
| Engineering, total | 382,083 | 395,397 | 434,854 | 499,070 | 570,484 | 672,360 | 770,664 | 895,062 |
| Aeronautical and astronautical | 23,891 | 22,819 | 27,421 | 31,022 | 36,985 | 50,648 | 57,169 | 65,948 |
| Chemical | 31,234 | 32,522 | 34,879 | 37,244 | 35,625 | 41,882 | 47,281 | 56,555 |
| Civil | 44,685 | 50,697 | 54,689 | 63,557 | 60,052 | 70,454 | 74,678 | 87,955 |
| Electrical | 96,470 | 100,327 | 105,840 | 123,474 | 139,873 | 172,617 | 215,402 | 245,934 |
| Mechanical | 46,309 | 52,976 | 63,804 | 71,841 | 88,808 | 101,680 | 108,915 | 127,973 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 97,649 |
| Other, n.e.c. | 139,494 | 136,056 | 148,221 | 171,932 | 209,141 | 235,079 | 267,219 | 213,049 |
| All sciences, total | 2,479,157 | 2,715,017 | 3,046,112 | 3,330,814 | 3,597,893 | 4,027,421 | 4,423,775 | 4,713,148 |
| Physical sciences | 374,817 | 427,134 | 488,175 | 523,145 | 561,848 | 622,990 | 664,613 | 720,449 |
| Astronomy | 36,783 | 38,416 | 43,647 | 45,323 | 46,780 | 53,198 | 55,157 | 68,112 |
| Chemistry | 149,837 | 168,357 | 189,547 | 201,787 | 221,851 | 243,849 | 256,802 | 266,468 |
| Physics | 168,412 | 199,165 | 237,808 | 259,634 | 264,665 | 290,636 | 314,866 | 346,020 |
| Other, n.e.c. | 19,785 | 21,196 | 17,773 | 20,401 | 28,552 | 35,307 | 37,789 | 39,848 |
| Environmental sciences | 282,492 | 299,358 | 321,740 | 357,595 | 372,305 | 397,841 | 425,147 | 454,924 |
| Atmospheric | 57,852 | 61,262 | 68,305 | 80,071 | 87,896 | 86,028 | 94,880 | 97,159 |
| Earth sciences | 87,701 | 91,954 | 97,528 | 100,626 | 96,205 | 107,025 | 110,751 | 122,534 |
| Oceanography | 119,601 | 127,007 | 132,640 | 149,771 | 158,458 | 175,511 | 188,541 | 199,101 |
| Other, n.e.c. | 17,338 | 19,135 | 23,267 | 27,127 | 29,746 | 29,277 | 30,975 | 36,130 |
| Mathematical sciences | 34,410 | 40,673 | 41,450 | 50,634 | 60,130 | 66,686 | 72,191 | 76,626 |
| Computer sciences | 46,136 | 53,888 | 65,746 | 82,533 | 91,779 | 93,963 | 103,467 | 114,234 |
| Life sciences | 1,524,464 | 1,671,041 | 1,887,445 | 2,041,249 | 2,221,835 | 2,521,675 | 2,799,592 | 2,939,469 |
| Agricultural sciences .. | 254,396 | 261,305 | 285,264 | 282,399 | 286,608 | 312,179 | 336,311 | 336,689 |
| Biological sciences | 557,094 | 618,856 | 688,995 | 742,064 | 791,921 | 896,601 | 978,872 | 1,023,546 |
| Medical sciences | 678,980 | 747,200 | 858,884 | 933,254 | 1,053,016 | 1,207,628 | 1,373,373 | 1,459,457 |
| Other, n.e.c. | 33,994 | 43,680 | 54,302 | 83,532 | 90,290 | 105,267 | 111,036 | 119,778 |
| Psychology | 57,569 | 61,591 | 67,441 | 71,564 | 75,874 | 86,759 | 98,634 | 108,302 |
| Social sciences | 93,580 | 94,555 | 100,899 | 114,937 | 108,910 | 127,808 | 145,739 | 166,284 |
| Economics | 27,801 | 32,348 | 33,893 | 35,094 | 32,329 | 35,558 | 41,542 | 44,322 |
| Political science | 11,788 | 11,446 | 12,383 | 12,174 | 12,378 | 12,554 | 12,738 | 13,859 |
| Sociology | 27,387 | 22,559 | 22,425 | 27,442 | 23,809 | 28,959 | 32,390 | 38,756 |
| Other, n.e.c. | 26,604 | 28,202 | 32,198 | 40,227 | 40,394 | 50,737 | 59,070 | 69,347 |
| Other sciences, n.e.c. | 65,689 | 66,777 | 73,216 | 89,157 | 105,212 | 109,699 | 114,391 | 132,941 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-11. Non-Federal R&D expenditures at public universities and colleges,
by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total non-Federal | 2,243,638 | 2,468,194 | 2,801,443 | 3,275,495 | 3,728,491 | 4,063,371 | 4,650,420 | 5,191,172 |
| Source of funds | | | | | | | | |
| State and local governments .. | 572,676 | 632,165 | 685,611 | 832,647 | 927,345 | 995,847 | 1,108,099 | 1,202,903 |
| Industry | 243,046 | 285,044 | 341,454 | 439,157 | 493,429 | 545,271 | 636,466 | 738,248 |
| Institutional funds | 1,069,772 | 1,169,381 | 1,332,607 | 1,553,957 | 1,809,696 | 1,962,882 | 2,261,354 | 2,519,826 |
| All other sources | 358,144 | 381,604 | 441,771 | 449,734 | 498,021 | 559,371 | 644,501 | 730,195 |
| Field | | | | | | | | |
| Engineering, total | 294,105 | 337,999 | 414,381 | 503,173 | 596,585 | 662,442 | 793,040 | 898,808 |
| Aeronautical and | | | | | | | | |
| Astronautical | 8,811 | 10,649 | 12,172 | 12,431 | 17,548 | 17,787 | 21,420 | 24,952 |
| Chemical | 27,378 | 26,949 | 34,322 | 40,334 | 48,754 | 52,296 | 65,272 | 77,781 |
| Civil | 55,024 | 56,953 | 60,898 | 75,152 | 86,615 | 102,558 | 124,633 | 147,978 |
| Electrical | 49,762 | 59,484 | 75,235 | 94,214 | 110,343 | 125,704 | 148,828 | 162,461 |
| Mechanical | 31,359 | 39,290 | 49,994 | 56,729 | 68,086 | 82,287 | 98,221 | 117,582 |
| Metallurgical and | | | | | | | | |
| materials 1/ | NA | NA | NA | NA | NA | NA | NA | 104,430 |
| Other, n.e.c. | 121,771 | 144,674 | 181,760 | 224,313 | 265,239 | 281,810 | 334,666 | 263,623 |
| All sciences, total | 1,949,533 | 2,130,195 | 2,387,062 | 2,772,322 | 3,131,906 | 3,400,929 | 3,857,379 | 4,292,364 |
| Physical sciences | 143,232 | 162,261 | 192,790 | 229,257 | 265,021 | 303,589 | 347,471 | 380,635 |
| Astronomy | 16,593 | 19,256 | 22,150 | 24,237 | 29,395 | 35,163 | 40,615 | 45,499 |
| Chemistry | 61,174 | 67,733 | 78,046 | 94,936 | 107,667 | 117,888 | 134,683 | 150,388 |
| Physics | 55,266 | 63,719 | 76,010 | 93,144 | 106,198 | 124,183 | 140,217 | 149,910 |
| Other, n.e.c. | 10,199 | 11,553 | 16,584 | 16,940 | 21,761 | 26,355 | 31,957 | 34,838 |
| Environmental sciences | 158,910 | 167,517 | 198,749 | 223,981 | 257,040 | 262,897 | 298,434 | 330,562 |
| Atmospheric | 19,061 | 17,457 | 19,707 | 20,050 | 20,537 | 20,832 | 30,619 | 36,366 |
| Earth sciences | 68,017 | 73,530 | 86,370 | 101,615 | 111,303 | 105,310 | 120,360 | 133,799 |
| Oceanography | 43,838 | 47,501 | 61,484 | 63,296 | 75,225 | 86,638 | 83,275 | 99,375 |
| Other, n.e.c. | 27,994 | 29,029 | 31,188 | 39,020 | 49,975 | 50,117 | 64,180 | 61,023 |
| Mathematical sciences | 23,771 | 25,344 | 25,938 | 32,398 | 39,222 | 41,769 | 48,470 | 51,780 |
| Computer sciences | 34,205 | 39,596 | 58,210 | 58,294 | 75,910 | 78,008 | 101,697 | 121,369 |
| Life sciences | 1,337,600 | 1,469,530 | 1,623,222 | 1,866,411 | 2,069,991 | 2,241,425 | 2,534,629 | 2,822,275 |
| Agricultural sciences .. | 641,280 | 662,221 | 678,866 | 768,979 | 794,438 | 821,412 | 902,504 | 965,880 |
| Biological sciences | 297,434 | 347,132 | 431,427 | 480,138 | 528,613 | 583,953 | 661,443 | 749,804 |
| Medical sciences | 362,566 | 418,650 | 460,054 | 546,562 | 666,697 | 755,185 | 877,864 | 998,920 |
| Other, n.e.c. | 36,320 | 41,527 | 52,875 | 70,732 | 80,243 | 80,875 | 92,820 | 107,671 |
| Psychology | 33,483 | 33,990 | 39,538 | 42,283 | 47,552 | 53,892 | 60,939 | 66,527 |
| Social sciences | 156,225 | 168,332 | 179,429 | 224,607 | 253,788 | 275,417 | 313,338 | 357,206 |
| Economics | 47,524 | 51,100 | 57,927 | 71,700 | 81,927 | 84,727 | 97,583 | 108,030 |
| Political science | 26,145 | 26,502 | 28,653 | 33,648 | 37,620 | 39,748 | 48,153 | 57,908 |
| Sociology | 27,303 | 23,827 | 26,340 | 33,118 | 34,463 | 42,835 | 48,424 | 56,005 |
| Other, n.e.c. | 55,253 | 66,903 | 66,509 | 86,141 | 99,778 | 108,107 | 119,178 | 135,263 |
| Other sciences, n.e.c. | 62,107 | 63,625 | 69,186 | 95,091 | 123,382 | 143,932 | 152,400 | 162,010 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-12. R&D expenditures at private universities and colleges,
by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 2,772,379 | 3,038,574 | 3,404,553 | 3,820,848 | 4,257,381 | 4,700,716 | 5,164,226 | 5,525,227 |
| Source of funds | | | | | | | | |
| Federal Government | 2,121,976 | 2,313,395 | 2,575,553 | 2,872,777 | 3,164,699 | 3,481,465 | 3,789,547 | 4,002,834 |
| State and local governments .. | 53,085 | 58,294 | 68,273 | 83,717 | 97,139 | 111,126 | 125,806 | 135,053 |
| Industry | 145,059 | 189,706 | 217,770 | 260,000 | 295,809 | 325,573 | 361,523 | 396,982 |
| Institutional funds | 233,435 | 244,127 | 289,704 | 319,132 | 366,351 | 400,941 | 450,791 | 497,458 |
| All other sources | 218,824 | 233,052 | 253,253 | 285,222 | 333,383 | 381,611 | 436,558 | 492,900 |
| Field | | | | | | | | |
| Engineering, total | 442,979 | 495,622 | 565,691 | 635,991 | 724,647 | 762,061 | 840,084 | 887,881 |
| Aeronautical and astronautical | 37,181 | 38,300 | 42,540 | 49,947 | 55,343 | 56,007 | 66,410 | 68,986 |
| Chemical | 32,605 | 36,691 | 40,671 | 48,740 | 56,374 | 60,261 | 72,776 | 71,836 |
| Civil | 26,942 | 32,243 | 37,943 | 40,561 | 46,377 | 54,949 | 52,026 | 53,814 |
| Electrical | 115,477 | 134,848 | 156,145 | 176,863 | 200,299 | 210,671 | 236,021 | 256,215 |
| Mechanical | 71,487 | 86,609 | 93,802 | 99,411 | 118,010 | 119,700 | 136,920 | 147,683 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 73,845 |
| Other, n.e.c. | 159,287 | 166,931 | 194,590 | 220,469 | 248,244 | 260,473 | 275,931 | 215,502 |
| All sciences, total | 2,329,400 | 2,542,952 | 2,838,862 | 3,184,857 | 3,532,734 | 3,938,655 | 4,324,142 | 4,637,346 |
| Physical sciences | 381,642 | 410,279 | 466,772 | 533,577 | 562,138 | 618,383 | 628,669 | 680,024 |
| Astronomy | 20,066 | 22,802 | 30,286 | 32,235 | 32,254 | 38,403 | 40,836 | 51,853 |
| Chemistry | 123,970 | 135,397 | 153,437 | 172,563 | 183,598 | 203,556 | 216,545 | 232,576 |
| Physics | 193,356 | 210,706 | 237,613 | 281,462 | 293,756 | 315,616 | 318,590 | 338,328 |
| Other, n.e.c. | 44,250 | 41,374 | 45,436 | 47,317 | 52,530 | 60,808 | 52,698 | 57,267 |
| Environmental sciences | 174,583 | 177,259 | 182,978 | 191,414 | 201,958 | 224,355 | 265,427 | 261,813 |
| Atmospheric | 21,455 | 23,076 | 19,522 | 19,827 | 19,858 | 26,808 | 37,090 | 33,788 |
| Earth sciences | 60,258 | 62,066 | 69,872 | 72,175 | 76,411 | 82,096 | 91,369 | 98,267 |
| Oceanography | 60,492 | 62,276 | 63,849 | 66,925 | 66,266 | 71,133 | 85,865 | 76,941 |
| Other, n.e.c. | 32,378 | 29,841 | 29,735 | 32,487 | 39,423 | 44,318 | 51,103 | 52,817 |
| Mathematical sciences | 48,259 | 57,245 | 60,642 | 68,871 | 77,520 | 90,649 | 93,969 | 92,891 |
| Computer sciences | 106,762 | 131,188 | 158,799 | 182,079 | 205,425 | 238,186 | 263,105 | 267,020 |
| Life sciences | 1,441,550 | 1,572,347 | 1,771,478 | 1,985,113 | 2,241,024 | 2,492,627 | 2,753,342 | 3,001,728 |
| Agricultural sciences .. | 25,769 | 31,039 | 35,544 | 38,571 | 40,419 | 43,662 | 48,261 | 48,022 |
| Biological sciences | 560,592 | 602,013 | 654,732 | 716,338 | 812,240 | 907,015 | 989,652 | 1,071,121 |
| Medical sciences | 794,329 | 874,766 | 1,008,330 | 1,145,525 | 1,296,154 | 1,424,921 | 1,592,004 | 1,737,806 |
| Other, n.e.c. | 60,860 | 64,529 | 72,872 | 84,679 | 92,211 | 117,029 | 123,425 | 144,778 |
| Psychology | 44,683 | 50,013 | 51,627 | 56,932 | 64,531 | 73,412 | 78,460 | 84,726 |
| Social sciences | 94,938 | 95,522 | 102,604 | 123,009 | 139,474 | 149,931 | 177,536 | 178,685 |
| Economics | 22,763 | 25,046 | 26,168 | 28,972 | 35,429 | 43,853 | 50,221 | 50,839 |
| Political science | 16,691 | 18,162 | 18,343 | 23,013 | 31,223 | 34,698 | 42,364 | 39,777 |
| Sociology | 22,657 | 23,499 | 25,987 | 35,881 | 38,053 | 37,897 | 40,510 | 39,250 |
| Other, n.e.c. | 32,827 | 28,815 | 32,106 | 35,143 | 34,769 | 33,483 | 44,440 | 48,819 |
| Other sciences, n.e.c. | 36,983 | 49,099 | 43,962 | 43,862 | 40,664 | 51,112 | 63,633 | 70,459 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-13. Federally financed R&D expenditures at private universities and colleges,
by science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 2,121,976 | 2,313,395 | 2,575,553 | 2,872,777 | 3,164,699 | 3,481,465 | 3,789,547 | 4,002,834 |
| Engineering, total | 351,217 | 391,381 | 430,517 | 476,790 | 541,638 | 557,208 | 614,416 | 639,869 |
| Aeronautical and astronautical | 32,299 | 34,154 | 37,086 | 42,561 | 46,565 | 46,219 | 54,599 | 57,529 |
| Chemical | 21,299 | 22,334 | 23,663 | 30,331 | 33,942 | 36,098 | 45,679 | 43,362 |
| Civil | 19,168 | 21,965 | 24,561 | 25,330 | 30,987 | 34,629 | 30,384 | 31,295 |
| Electrical | 96,718 | 108,947 | 122,496 | 136,683 | 151,997 | 157,455 | 173,502 | 184,655 |
| Mechanical | 53,933 | 65,975 | 70,206 | 76,059 | 89,470 | 90,794 | 103,650 | 110,491 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 46,173 |
| Other, n.e.c. | 127,800 | 138,006 | 152,505 | 165,626 | 188,677 | 192,013 | 206,602 | 166,345 |
| All sciences, total | 1,770,759 | 1,922,014 | 2,145,036 | 2,395,987 | 2,623,061 | 2,924,257 | 3,175,131 | 3,362,965 |
| Physical sciences | 324,652 | 354,529 | 401,759 | 459,014 | 484,056 | 528,645 | 528,277 | 569,714 |
| Astronomy | 13,133 | 14,765 | 20,746 | 24,363 | 24,409 | 30,546 | 32,282 | 40,723 |
| Chemistry | 97,505 | 110,695 | 122,998 | 136,249 | 145,914 | 158,875 | 164,910 | 176,934 |
| Physics | 174,088 | 190,876 | 215,913 | 254,657 | 265,065 | 283,090 | 283,199 | 301,446 |
| Other, n.e.c. | 39,926 | 38,193 | 42,102 | 43,745 | 48,668 | 56,134 | 47,886 | 50,611 |
| Environmental sciences | 143,101 | 145,691 | 151,015 | 157,583 | 168,757 | 185,311 | 222,697 | 219,205 |
| Atmospheric | 19,276 | 20,909 | 17,567 | 17,398 | 17,924 | 23,190 | 32,962 | 30,328 |
| Earth sciences | 47,033 | 47,802 | 56,452 | 59,436 | 63,295 | 67,489 | 75,355 | 82,375 |
| Oceanography | 51,941 | 53,942 | 55,026 | 58,292 | 59,244 | 62,997 | 77,382 | 68,619 |
| Other, n.e.c. | 24,851 | 23,038 | 21,970 | 22,457 | 28,294 | 31,635 | 36,998 | 37,883 |
| Mathematical sciences | 42,063 | 51,631 | 55,561 | 63,734 | 71,248 | 82,573 | 83,798 | 82,062 |
| Computer sciences | 92,745 | 108,959 | 129,868 | 149,984 | 165,342 | 195,051 | 214,443 | 219,380 |
| Life sciences | 1,061,625 | 1,155,819 | 1,296,553 | 1,446,606 | 1,608,031 | 1,796,386 | 1,980,319 | 2,128,477 |
| Agricultural sciences .. | 7,063 | 7,562 | 8,735 | 9,979 | 10,935 | 10,382 | 12,062 | 11,444 |
| Biological sciences | 425,968 | 470,604 | 515,832 | 563,857 | 619,857 | 697,850 | 747,894 | 809,218 |
| Medical sciences | 582,466 | 626,959 | 717,932 | 809,627 | 910,319 | 1,006,764 | 1,133,301 | 1,208,253 |
| Other, n.e.c. | 46,128 | 50,694 | 54,054 | 63,143 | 66,920 | 81,390 | 87,063 | 99,562 |
| Psychology | 32,147 | 36,587 | 38,811 | 42,872 | 48,412 | 54,192 | 57,925 | 61,078 |
| Social sciences | 53,325 | 48,498 | 52,831 | 57,898 | 59,348 | 60,587 | 65,505 | 59,150 |
| Economics | 10,982 | 10,044 | 9,799 | 10,354 | 11,094 | 13,610 | 12,866 | 10,147 |
| Political science | 8,312 | 7,603 | 7,409 | 8,117 | 11,750 | 12,560 | 12,826 | 11,037 |
| Sociology | 15,537 | 15,369 | 17,449 | 21,983 | 20,844 | 19,412 | 21,256 | 21,013 |
| Other, n.e.c. | 18,494 | 15,482 | 18,174 | 17,444 | 15,660 | 15,005 | 18,557 | 16,953 |
| Other sciences, n.e.c. | 21,101 | 20,300 | 18,638 | 18,296 | 17,867 | 21,512 | 22,167 | 23,898 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-14. Non-Federal R&D expenditures at private universities and colleges,
by source of funds and science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---------|---------|---------|---------|-----------|-----------|-----------|-----------|
| Total non-Federal | 650,403 | 725,179 | 829,000 | 948,071 | 1,092,682 | 1,219,251 | 1,374,678 | 1,522,393 |
| Source of funds | | | | | | | | |
| State and local governments .. | 53,085 | 58,294 | 68,273 | 83,717 | 97,139 | 111,126 | 125,806 | 135,053 |
| Industry | 145,059 | 189,706 | 217,770 | 260,000 | 295,809 | 325,573 | 361,523 | 396,982 |
| Institutional funds | 233,435 | 244,127 | 289,704 | 319,132 | 366,351 | 400,941 | 450,791 | 497,458 |
| All other sources | 218,824 | 233,052 | 253,253 | 285,222 | 333,383 | 381,611 | 436,558 | 492,900 |
| Field | | | | | | | | |
| Engineering, total | 91,762 | 104,241 | 135,174 | 159,201 | 183,009 | 204,853 | 225,668 | 248,012 |
| Aeronautical and astronautical | 4,882 | 4,146 | 5,454 | 7,386 | 8,778 | 9,788 | 11,811 | 11,457 |
| Chemical | 11,306 | 14,357 | 17,008 | 18,409 | 22,432 | 24,163 | 27,097 | 28,454 |
| Civil | 7,774 | 10,278 | 13,382 | 15,031 | 15,390 | 20,320 | 21,642 | 22,519 |
| Electrical | 18,759 | 25,901 | 33,649 | 40,180 | 48,302 | 53,216 | 62,519 | 71,560 |
| Mechanical | 17,554 | 20,634 | 23,596 | 23,352 | 28,540 | 28,906 | 33,270 | 37,192 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 27,672 |
| Other, n.e.c. | 31,487 | 28,925 | 42,085 | 54,843 | 59,567 | 68,460 | 69,329 | 49,157 |
| All sciences, total | 558,641 | 620,938 | 693,826 | 788,870 | 909,673 | 1,014,398 | 1,149,010 | 1,274,382 |
| Physical sciences | 56,990 | 55,750 | 65,013 | 74,563 | 78,082 | 89,738 | 100,392 | 110,310 |
| Astronomy | 6,933 | 8,037 | 9,540 | 7,872 | 7,845 | 7,857 | 8,554 | 11,130 |
| Chemistry | 26,465 | 24,702 | 30,439 | 36,314 | 37,684 | 44,681 | 51,635 | 55,642 |
| Physics | 19,268 | 19,830 | 21,700 | 26,805 | 28,691 | 32,526 | 35,391 | 36,882 |
| Other, n.e.c. | 4,324 | 3,181 | 3,334 | 3,572 | 3,862 | 4,674 | 4,812 | 6,656 |
| Environmental sciences | 31,482 | 31,568 | 31,963 | 33,831 | 33,201 | 39,044 | 42,730 | 42,608 |
| Atmospheric | 2,179 | 2,167 | 1,955 | 2,429 | 1,934 | 3,618 | 4,128 | 3,460 |
| Earth sciences | 13,225 | 14,264 | 13,420 | 12,739 | 13,116 | 14,607 | 16,014 | 15,892 |
| Oceanography | 8,551 | 8,334 | 8,823 | 8,633 | 7,022 | 8,136 | 8,483 | 8,322 |
| Other, n.e.c. | 7,527 | 6,803 | 7,765 | 10,030 | 11,129 | 12,683 | 14,105 | 14,934 |
| Mathematical sciences | 6,196 | 5,614 | 5,081 | 5,137 | 6,272 | 8,076 | 10,171 | 10,829 |
| Computer sciences | 14,017 | 22,229 | 28,931 | 32,095 | 40,083 | 43,135 | 48,662 | 47,640 |
| Life sciences | 379,925 | 416,528 | 474,925 | 538,507 | 632,993 | 696,241 | 773,023 | 873,251 |
| Agricultural sciences .. | 18,706 | 23,477 | 26,809 | 28,592 | 29,484 | 33,280 | 36,199 | 36,578 |
| Biological sciences | 134,624 | 131,409 | 138,900 | 152,481 | 192,383 | 209,165 | 241,758 | 261,903 |
| Medical sciences | 211,863 | 247,807 | 290,398 | 335,898 | 385,835 | 418,157 | 458,704 | 529,553 |
| Other, n.e.c. | 14,732 | 13,835 | 18,818 | 21,536 | 25,291 | 35,639 | 36,362 | 45,216 |
| Psychology | 12,536 | 13,426 | 12,816 | 14,060 | 16,119 | 19,220 | 20,535 | 23,648 |
| Social sciences | 41,613 | 47,024 | 49,773 | 65,111 | 80,126 | 89,344 | 112,031 | 119,535 |
| Economics | 11,781 | 15,002 | 16,369 | 18,618 | 24,335 | 30,243 | 37,355 | 40,692 |
| Political science | 8,379 | 10,559 | 10,934 | 14,896 | 19,473 | 22,138 | 29,538 | 28,740 |
| Sociology | 7,120 | 8,130 | 8,538 | 13,898 | 17,209 | 18,485 | 19,254 | 18,237 |
| Other, n.e.c. | 14,333 | 13,333 | 13,932 | 17,699 | 19,109 | 18,478 | 25,883 | 31,866 |
| Other sciences, n.e.c. | 15,882 | 28,799 | 25,324 | 25,566 | 22,797 | 29,600 | 41,466 | 46,561 |

1/ Data for metallurgical and materials engineering were not collected separately
prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering
Expenditures at Universities and Colleges

Table 8-15. R&D expenditures at doctorate-granting institutions, by source of funds, science and engineering field, and control: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

| Source and field | Total | | | Public | | | Private | | |
|---|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|-----------|
| | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 |
| Total | 7,755,419 | 14,762,275 | 16,057,003 | 5,009,488 | 9,651,514 | 10,587,079 | 2,745,931 | 5,110,761 | 5,469,924 |
| Source of funds | | | | | | | | | |
| Federal Government | 4,905,224 | 8,836,691 | 9,453,757 | 2,799,834 | 5,079,319 | 5,486,278 | 2,105,390 | 3,757,372 | 3,967,479 |
| State and local governments .. | 613,446 | 1,202,546 | 1,298,659 | 560,911 | 1,081,156 | 1,167,064 | 52,535 | 121,390 | 131,595 |
| Industry | 380,486 | 977,729 | 1,114,503 | 238,774 | 622,510 | 722,198 | 141,712 | 355,219 | 392,305 |
| Institutional funds | 1,286,310 | 2,680,475 | 2,982,116 | 1,055,621 | 2,237,018 | 2,490,560 | 230,689 | 443,457 | 491,556 |
| All other sources | 569,953 | 1,064,834 | 1,207,968 | 354,348 | 631,511 | 720,979 | 215,605 | 433,323 | 486,989 |
| Field | | | | | | | | | |
| Engineering, total | 1,108,379 | 2,368,226 | 2,638,425 | 668,847 | 1,532,095 | 1,753,625 | 439,532 | 836,131 | 884,800 |
| Aeronautical and astronautical | 69,136 | 142,544 | 158,127 | 32,014 | 76,184 | 89,141 | 37,122 | 66,360 | 68,986 |
| Chemical | 90,982 | 183,624 | 204,413 | 58,534 | 111,172 | 132,786 | 32,448 | 72,452 | 71,627 |
| Civil | 124,436 | 246,813 | 285,164 | 99,189 | 194,902 | 231,423 | 25,247 | 51,911 | 53,741 |
| Electrical | 259,299 | 589,092 | 653,694 | 144,416 | 354,076 | 398,297 | 114,883 | 235,016 | 255,357 |
| Mechanical | 147,310 | 337,781 | 384,973 | 76,246 | 203,216 | 239,234 | 71,064 | 134,565 | 145,739 |
| Metallurgical and materials 1/..... | NA | NA | 273,818 | NA | NA | 199,973 | NA | NA | 73,845 |
| Other, n.e.c. | 417,216 | 868,372 | 678,236 | 258,448 | 592,545 | 462,771 | 158,768 | 275,827 | 215,465 |
| All sciences, total | 6,647,040 | 12,394,049 | 13,418,578 | 4,340,641 | 8,119,419 | 8,833,454 | 2,306,399 | 4,274,630 | 4,585,124 |
| Physical sciences | 880,342 | 1,601,481 | 1,736,378 | 505,134 | 985,649 | 1,070,882 | 375,208 | 615,832 | 665,496 |
| Astronomy | 72,714 | 136,571 | 165,415 | 52,877 | 95,735 | 113,562 | 19,837 | 40,836 | 51,853 |
| Chemistry | 323,392 | 584,346 | 623,795 | 202,711 | 375,923 | 400,416 | 120,681 | 208,423 | 223,379 |
| Physics | 410,546 | 760,517 | 816,633 | 220,006 | 446,335 | 483,440 | 190,540 | 314,182 | 333,193 |
| Other, n.e.c. | 73,690 | 120,047 | 130,535 | 29,540 | 67,656 | 73,464 | 44,150 | 52,391 | 57,071 |
| Environmental sciences | 600,646 | 959,434 | 1,013,979 | 429,811 | 700,311 | 759,644 | 170,835 | 259,123 | 254,335 |
| Atmospheric | 95,862 | 153,238 | 158,057 | 76,220 | 121,521 | 129,765 | 19,642 | 31,717 | 28,292 |
| Earth sciences | 210,550 | 318,663 | 347,106 | 150,854 | 228,079 | 250,540 | 59,696 | 90,584 | 96,566 |
| Oceanography | 220,552 | 346,189 | 363,756 | 161,241 | 260,324 | 286,815 | 59,311 | 85,865 | 76,941 |
| Other, n.e.c. | 73,682 | 141,344 | 145,060 | 41,496 | 90,387 | 92,524 | 32,186 | 50,957 | 52,536 |
| Mathematical sciences | 102,868 | 210,235 | 216,439 | 55,033 | 117,483 | 124,742 | 47,835 | 92,752 | 91,697 |
| Computer sciences | 184,507 | 460,482 | 494,418 | 78,543 | 198,729 | 229,180 | 105,964 | 261,753 | 265,238 |
| Life sciences | 4,257,899 | 7,988,817 | 8,666,523 | 2,822,369 | 5,256,543 | 5,685,813 | 1,435,530 | 2,732,274 | 2,980,710 |
| Agricultural sciences .. | 899,830 | 1,246,862 | 1,309,874 | 874,068 | 1,200,567 | 1,263,878 | 25,762 | 46,295 | 45,996 |
| Biological sciences | 1,394,072 | 2,577,521 | 2,791,534 | 838,141 | 1,604,660 | 1,737,531 | 555,931 | 972,861 | 1,054,003 |
| Medical sciences | 1,834,943 | 3,838,749 | 4,194,137 | 1,040,913 | 2,248,824 | 2,458,000 | 794,030 | 1,589,925 | 1,736,137 |
| Other, n.e.c. | 129,054 | 325,685 | 370,978 | 69,247 | 202,492 | 226,404 | 59,807 | 123,193 | 144,574 |
| Psychology | 131,863 | 227,299 | 245,018 | 88,506 | 151,922 | 162,538 | 43,357 | 75,377 | 82,480 |
| Social sciences | 327,085 | 619,320 | 686,246 | 236,198 | 444,025 | 508,898 | 90,887 | 175,295 | 177,348 |
| Economics | 94,979 | 185,875 | 199,356 | 72,747 | 135,956 | 148,629 | 22,232 | 49,919 | 50,727 |
| Political science | 52,828 | 102,066 | 110,110 | 36,491 | 59,941 | 70,735 | 16,337 | 42,125 | 39,375 |
| Sociology | 71,156 | 116,649 | 130,174 | 50,799 | 77,105 | 91,410 | 20,357 | 39,544 | 38,764 |
| Other, n.e.c. | 108,122 | 214,730 | 246,606 | 76,161 | 171,023 | 198,124 | 31,961 | 43,707 | 48,482 |
| Other sciences, n.e.c. | 161,830 | 326,981 | 359,577 | 125,047 | 264,757 | 291,757 | 36,783 | 62,224 | 67,820 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-16. Federally financed R&D expenditures at doctorate-granting institutions, by science and engineering field and control: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

| Field | Total | | | Public | | | Private | | |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 |
| Total | 4,905,224 | 8,836,691 | 9,453,757 | 2,799,834 | 5,079,319 | 5,486,278 | 2,105,390 | 3,757,372 | 3,967,479 |
| Field | | | | | | | | | |
| Engineering, total | 727,040 | 1,367,531 | 1,513,915 | 377,631 | 754,361 | 875,204 | 349,409 | 613,170 | 638,711 |
| Aeronautical and astronautical | 55,565 | 109,749 | 122,017 | 23,296 | 55,195 | 64,488 | 32,269 | 54,554 | 57,529 |
| Chemical | 52,471 | 91,815 | 99,044 | 31,184 | 46,452 | 55,851 | 21,287 | 45,563 | 43,193 |
| Civil | 62,326 | 103,871 | 118,464 | 44,548 | 73,533 | 87,242 | 17,778 | 30,338 | 31,222 |
| Electrical | 191,916 | 382,532 | 423,664 | 95,312 | 209,370 | 239,310 | 96,604 | 173,162 | 184,354 |
| Mechanical | 99,091 | 209,504 | 233,735 | 45,236 | 106,314 | 123,814 | 53,855 | 103,190 | 109,921 |
| Metallurgical and materials 1/ | NA | NA | 141,976 | NA | NA | 95,803 | NA | NA | 46,173 |
| Other, n.e.c. | 265,671 | 470,060 | 375,015 | 138,055 | 263,497 | 208,696 | 127,616 | 206,563 | 166,319 |
| All sciences, total | 4,178,184 | 7,469,160 | 7,939,842 | 2,422,203 | 4,324,958 | 4,611,074 | 1,755,981 | 3,144,202 | 3,328,768 |
| Physical sciences | 687,141 | 1,167,233 | 1,261,808 | 366,525 | 647,362 | 701,595 | 320,616 | 519,871 | 560,213 |
| Astronomy | 49,439 | 87,422 | 108,805 | 36,486 | 55,140 | 68,082 | 12,953 | 32,282 | 40,723 |
| Chemistry | 240,476 | 406,998 | 428,016 | 144,497 | 246,719 | 256,265 | 95,979 | 160,279 | 171,751 |
| Physics | 337,731 | 588,323 | 635,159 | 165,948 | 308,899 | 338,031 | 171,783 | 279,424 | 297,128 |
| Other, n.e.c. | 59,495 | 84,490 | 89,828 | 19,594 | 36,604 | 39,217 | 39,901 | 47,886 | 50,611 |
| Environmental sciences | 416,015 | 625,370 | 651,714 | 274,986 | 408,253 | 438,798 | 141,029 | 217,117 | 212,916 |
| Atmospheric | 74,738 | 119,140 | 119,230 | 57,252 | 91,551 | 94,398 | 17,486 | 27,589 | 24,832 |
| Earth sciences | 131,357 | 184,087 | 201,642 | 84,534 | 108,939 | 120,010 | 46,823 | 75,148 | 81,632 |
| Oceanography | 170,292 | 256,879 | 259,000 | 118,404 | 179,497 | 190,381 | 51,888 | 77,382 | 68,619 |
| Other, n.e.c. | 39,628 | 65,264 | 71,842 | 14,796 | 28,266 | 34,009 | 24,832 | 36,998 | 37,833 |
| Mathematical sciences | 74,301 | 153,556 | 156,392 | 32,518 | 70,533 | 74,992 | 41,783 | 83,023 | 81,406 |
| Computer sciences | 137,689 | 313,675 | 329,922 | 45,261 | 100,330 | 111,775 | 92,428 | 213,345 | 218,147 |
| Life sciences | 2,551,668 | 4,719,621 | 5,007,314 | 1,494,618 | 2,751,240 | 2,892,412 | 1,057,050 | 1,968,381 | 2,114,902 |
| Agricultural sciences .. | 243,754 | 322,291 | 321,259 | 236,692 | 311,999 | 311,781 | 7,062 | 10,292 | 9,478 |
| Biological sciences | 968,499 | 1,696,979 | 1,800,810 | 546,055 | 957,390 | 1,001,901 | 422,444 | 739,589 | 798,909 |
| Medical sciences | 1,260,910 | 2,502,627 | 2,666,460 | 678,485 | 1,371,130 | 1,459,432 | 582,425 | 1,131,497 | 1,207,028 |
| Other, n.e.c. | 78,505 | 197,724 | 218,785 | 33,386 | 110,721 | 119,298 | 45,119 | 87,003 | 99,487 |
| Psychology | 87,149 | 148,318 | 157,839 | 56,067 | 92,992 | 98,403 | 31,082 | 55,326 | 59,436 |
| Social sciences | 139,332 | 205,895 | 219,950 | 88,357 | 140,586 | 160,945 | 50,975 | 65,309 | 59,005 |
| Economics | 36,687 | 53,543 | 53,370 | 25,940 | 40,747 | 43,243 | 10,747 | 12,796 | 10,127 |
| Political science | 19,368 | 25,308 | 24,665 | 11,281 | 12,486 | 13,659 | 8,087 | 12,822 | 11,006 |
| Sociology | 40,102 | 52,353 | 58,464 | 26,076 | 31,129 | 37,480 | 14,026 | 21,224 | 20,984 |
| Other, n.e.c. | 43,175 | 74,691 | 83,451 | 25,060 | 56,224 | 66,563 | 18,115 | 18,467 | 16,888 |
| Other sciences, n.e.c. | 84,889 | 135,492 | 154,903 | 63,871 | 113,662 | 132,154 | 21,018 | 21,830 | 22,749 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-17. Non-Federal R&D expenditures at doctorate-granting institutions, by source of funds, science and engineering field, and control: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

| Source and field | Total | | | Public | | | Private | | |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------|-----------|-----------|
| | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 |
| Total non-Federal | 2,850,195 | 5,925,584 | 6,603,246 | 2,209,654 | 4,572,195 | 5,100,801 | 640,541 | 1,353,389 | 1,502,445 |
| Source of funds | | | | | | | | | |
| State and local governments .. | 613,446 | 1,202,546 | 1,298,659 | 560,911 | 1,081,156 | 1,167,064 | 52,535 | 121,390 | 131,595 |
| Industry | 380,486 | 977,729 | 1,114,503 | 238,774 | 622,510 | 722,198 | 141,712 | 355,219 | 392,305 |
| Institutional funds | 1,286,310 | 2,680,475 | 2,982,116 | 1,055,621 | 2,237,018 | 2,490,560 | 230,689 | 443,457 | 491,556 |
| All other sources | 569,953 | 1,064,834 | 1,207,968 | 354,348 | 631,511 | 720,979 | 215,605 | 433,323 | 486,989 |
| Field | | | | | | | | | |
| Engineering, total | 381,339 | 1,000,695 | 1,124,510 | 291,216 | 777,734 | 878,421 | 90,123 | 222,961 | 246,089 |
| Aeronautical and | | | | | | | | | |
| astronautical | 13,571 | 32,795 | 36,110 | 8,718 | 20,989 | 24,653 | 4,853 | 11,806 | 11,457 |
| Chemical | 38,511 | 91,809 | 105,369 | 27,350 | 64,720 | 76,935 | 11,161 | 27,089 | 28,434 |
| Civil | 62,110 | 142,942 | 166,700 | 54,641 | 121,369 | 144,181 | 7,469 | 21,573 | 22,519 |
| Electrical | 67,383 | 206,560 | 230,030 | 49,104 | 144,706 | 158,987 | 18,279 | 61,854 | 71,043 |
| Mechanical | 48,219 | 128,277 | 151,238 | 31,010 | 96,902 | 115,420 | 17,209 | 31,375 | 35,818 |
| Metallurgical and | | | | | | | | | |
| materials 1/ | NA | NA | 131,842 | NA | NA | 104,170 | NA | NA | 27,672 |
| Other, n.e.c. | 151,545 | 398,312 | 303,221 | 120,393 | 329,048 | 254,075 | 31,152 | 69,264 | 49,146 |
| All sciences, total | 2,468,856 | 4,924,889 | 5,478,736 | 1,918,438 | 3,794,461 | 4,222,380 | 550,418 | 1,130,428 | 1,256,356 |
| Physical sciences | 193,201 | 434,248 | 474,570 | 138,609 | 338,287 | 369,287 | 54,592 | 95,961 | 105,283 |
| Astronomy | 23,275 | 49,149 | 56,610 | 16,391 | 40,595 | 45,480 | 6,884 | 8,554 | 11,130 |
| Chemistry | 82,916 | 177,348 | 195,779 | 58,214 | 129,204 | 144,151 | 24,702 | 48,144 | 51,628 |
| Physics | 72,815 | 172,194 | 181,474 | 54,058 | 137,436 | 145,409 | 18,757 | 34,758 | 36,065 |
| Other, n.e.c. | 14,195 | 35,557 | 40,707 | 9,946 | 31,052 | 34,247 | 4,249 | 4,505 | 6,460 |
| Environmental sciences | 184,631 | 334,064 | 362,265 | 154,825 | 292,058 | 320,846 | 29,806 | 42,006 | 41,419 |
| Atmospheric | 21,124 | 34,098 | 38,827 | 18,968 | 29,970 | 35,367 | 2,156 | 4,128 | 3,460 |
| Earth sciences | 79,193 | 134,576 | 145,464 | 66,320 | 119,140 | 130,530 | 12,873 | 15,436 | 14,934 |
| Oceanography | 50,260 | 89,310 | 104,756 | 42,837 | 80,827 | 96,434 | 7,423 | 8,483 | 8,322 |
| Other, n.e.c. | 34,054 | 76,080 | 73,218 | 26,700 | 62,121 | 58,515 | 7,354 | 13,959 | 14,703 |
| Mathematical sciences | 28,567 | 56,679 | 60,047 | 22,515 | 46,950 | 49,750 | 6,052 | 9,729 | 10,297 |
| Computer sciences | 46,818 | 146,807 | 164,496 | 33,282 | 98,399 | 117,405 | 13,536 | 48,408 | 47,091 |
| Life sciences | 1,706,231 | 3,269,196 | 3,659,209 | 1,327,751 | 2,505,303 | 2,793,401 | 378,480 | 763,893 | 865,808 |
| Agricultural sciences .. | 656,076 | 924,571 | 988,615 | 637,376 | 888,568 | 952,097 | 18,700 | 36,003 | 36,518 |
| Biological sciences | 425,573 | 880,542 | 990,724 | 292,086 | 647,270 | 735,630 | 133,487 | 233,272 | 255,094 |
| Medical sciences | 574,033 | 1,336,122 | 1,527,677 | 362,428 | 877,694 | 998,568 | 211,605 | 458,428 | 529,109 |
| Other, n.e.c. | 50,549 | 127,961 | 152,193 | 35,861 | 91,771 | 107,106 | 14,688 | 36,190 | 45,087 |
| Psychology | 44,714 | 78,981 | 87,179 | 32,439 | 58,930 | 64,135 | 12,275 | 20,051 | 23,044 |
| Social sciences | 187,753 | 413,425 | 466,296 | 147,841 | 303,439 | 347,953 | 39,912 | 109,986 | 118,343 |
| Economics | 58,292 | 132,332 | 145,986 | 46,807 | 95,209 | 105,386 | 11,485 | 37,123 | 40,600 |
| Political science | 33,460 | 76,758 | 85,445 | 25,210 | 47,455 | 57,076 | 8,250 | 29,303 | 28,369 |
| Sociology | 31,054 | 64,296 | 71,710 | 24,723 | 45,976 | 53,930 | 6,331 | 18,320 | 17,780 |
| Other, n.e.c. | 64,947 | 140,039 | 163,155 | 51,101 | 114,799 | 131,561 | 13,846 | 25,240 | 31,594 |
| Other sciences, n.e.c. | 76,941 | 191,489 | 204,674 | 61,176 | 151,095 | 159,603 | 15,765 | 40,394 | 45,071 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-18. R&D expenditures at historically black colleges and universities,
by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|--------|--------|--------|--------|--------|--------|---------|---------|
| Total | 52,528 | 61,074 | 62,725 | 71,832 | 73,759 | 92,458 | 123,591 | 134,859 |
| Source of funds | | | | | | | | |
| Federal Government | 44,785 | 54,130 | 57,725 | 60,665 | 61,230 | 75,625 | 100,973 | 111,394 |
| State and local governments .. | 1,712 | 826 | 1,150 | 1,163 | 2,528 | 4,475 | 6,883 | 7,588 |
| Industry | 647 | 809 | 1,371 | 1,746 | 1,555 | 3,162 | 3,666 | 4,979 |
| Institutional funds | 3,744 | 3,661 | 1,579 | 6,722 | 7,182 | 7,476 | 10,858 | 8,984 |
| All other sources | 1,640 | 1,648 | 900 | 1,536 | 1,264 | 1,720 | 1,211 | 1,914 |
| Field | | | | | | | | |
| Engineering, total | 2,607 | 3,978 | 5,077 | 6,898 | 6,400 | 7,814 | 10,529 | 13,645 |
| Aeronautical and astronautical | 310 | 266 | 250 | 263 | 371 | 410 | 226 | 119 |
| Chemical | 41 | 94 | 140 | 220 | 184 | 607 | 660 | 1,014 |
| Civil | 416 | 627 | 191 | 134 | 906 | 1,340 | 1,198 | 1,022 |
| Electrical | 1,189 | 1,689 | 1,119 | 1,467 | 2,123 | 1,915 | 2,763 | 2,530 |
| Mechanical | 294 | 592 | 1,002 | 1,619 | 1,912 | 2,224 | 3,108 | 3,412 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 1,375 |
| Other, n.e.c. | 357 | 710 | 2,375 | 3,195 | 904 | 1,318 | 2,574 | 4,173 |
| All sciences, total | 49,921 | 57,096 | 57,648 | 64,934 | 67,359 | 84,644 | 113,062 | 121,214 |
| Physical sciences | 7,377 | 10,718 | 11,952 | 13,783 | 14,089 | 14,672 | 17,664 | 22,164 |
| Astronomy | 88 | 68 | 16 | 26 | 12 | 27 | 0 | 0 |
| Chemistry | 5,029 | 7,577 | 7,693 | 9,051 | 7,875 | 9,321 | 9,879 | 9,975 |
| Physics | 1,881 | 2,888 | 3,970 | 4,473 | 6,074 | 5,323 | 7,619 | 11,956 |
| Other, n.e.c. | 379 | 185 | 273 | 233 | 128 | 1 | 166 | 233 |
| Environmental sciences | 1,016 | 693 | 1,173 | 1,104 | 1,229 | 1,362 | 1,446 | 2,738 |
| Atmospheric | 34 | 22 | 21 | 0 | 0 | 3 | 388 | 625 |
| Earth sciences | 400 | 191 | 350 | 286 | 303 | 328 | 526 | 461 |
| Oceanography | 62 | 133 | 305 | 381 | 208 | 397 | 27 | 48 |
| Other, n.e.c. | 520 | 347 | 497 | 437 | 718 | 634 | 505 | 1,604 |
| Mathematical sciences | 829 | 986 | 974 | 1,501 | 371 | 311 | 688 | 905 |
| Computer sciences | 225 | 295 | 493 | 629 | 957 | 1,290 | 2,386 | 2,496 |
| Life sciences | 35,160 | 37,903 | 38,472 | 41,587 | 43,901 | 56,948 | 80,241 | 81,892 |
| Agricultural sciences .. | 17,080 | 18,911 | 18,156 | 18,960 | 18,495 | 22,100 | 34,060 | 33,895 |
| Biological sciences | 11,484 | 13,579 | 12,534 | 12,593 | 15,838 | 24,990 | 34,041 | 35,467 |
| Medical sciences | 3,126 | 2,194 | 7,089 | 9,215 | 8,514 | 8,998 | 11,024 | 11,765 |
| Other, n.e.c. | 3,470 | 3,219 | 693 | 819 | 1,054 | 860 | 1,116 | 765 |
| Psychology | 173 | 58 | 221 | 352 | 628 | 494 | 1,494 | 1,706 |
| Social sciences | 4,368 | 5,879 | 3,822 | 5,017 | 4,591 | 8,639 | 7,973 | 7,839 |
| Economics | 1,907 | 3,920 | 1,310 | 634 | 290 | 838 | 864 | 1,528 |
| Political science | 823 | 662 | 934 | 994 | 728 | 1,169 | 1,156 | 978 |
| Sociology | 916 | 919 | 955 | 999 | 675 | 2,088 | 1,658 | 2,064 |
| Other, n.e.c. | 722 | 378 | 623 | 2,390 | 2,898 | 4,544 | 4,295 | 3,269 |
| Other sciences, n.e.c. | 773 | 564 | 541 | 961 | 1,593 | 928 | 1,170 | 1,474 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-19. Federally financed R&D expenditures at historically black colleges and universities,
by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|--------|--------|--------|--------|--------|--------|---------|---------|
| Total | 44,785 | 54,130 | 57,725 | 60,665 | 61,230 | 75,625 | 100,973 | 111,394 |
| Field | | | | | | | | |
| Engineering, total | 2,146 | 3,247 | 4,372 | 4,911 | 4,331 | 5,665 | 8,008 | 11,839 |
| Aeronautical and astronautical | 301 | 258 | 243 | 256 | 350 | 382 | 123 | 119 |
| Chemical | 30 | 84 | 140 | 158 | 123 | 554 | 586 | 747 |
| Civil | 393 | 577 | 184 | 130 | 585 | 811 | 880 | 647 |
| Electrical | 933 | 1,498 | 962 | 1,031 | 1,381 | 1,358 | 1,906 | 2,075 |
| Mechanical | 233 | 457 | 878 | 1,279 | 1,480 | 1,964 | 2,787 | 3,106 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 1,375 |
| Other, n.e.c. | 256 | 373 | 1,965 | 2,057 | 412 | 596 | 1,726 | 3,770 |
| All sciences, total | 42,639 | 50,883 | 53,353 | 55,754 | 56,899 | 69,960 | 92,965 | 99,555 |
| Physical sciences | 6,332 | 9,797 | 11,082 | 11,583 | 12,410 | 12,665 | 14,978 | 18,778 |
| Astronomy | 88 | 66 | 16 | 26 | 12 | 27 | 0 | 0 |
| Chemistry | 4,344 | 6,885 | 7,116 | 7,163 | 6,516 | 7,821 | 8,553 | 8,863 |
| Physics | 1,752 | 2,661 | 3,750 | 4,161 | 5,754 | 4,816 | 6,302 | 9,746 |
| Other, n.e.c. | 148 | 185 | 200 | 233 | 128 | 1 | 123 | 169 |
| Environmental sciences | 563 | 442 | 867 | 822 | 883 | 1,079 | 793 | 666 |
| Atmospheric | 26 | 17 | 19 | 0 | 0 | 3 | 129 | 105 |
| Earth sciences | 352 | 151 | 316 | 245 | 239 | 250 | 248 | 252 |
| Oceanography | 50 | 124 | 297 | 348 | 206 | 372 | 2 | 22 |
| Other, n.e.c. | 135 | 150 | 235 | 229 | 438 | 454 | 414 | 287 |
| Mathematical sciences | 284 | 412 | 941 | 1,012 | 329 | 255 | 446 | 633 |
| Computer sciences | 192 | 288 | 480 | 582 | 863 | 1,155 | 1,997 | 1,886 |
| Life sciences | 31,387 | 34,022 | 36,072 | 36,331 | 38,093 | 49,648 | 69,071 | 70,728 |
| Agricultural sciences .. | 16,106 | 17,534 | 16,959 | 17,739 | 16,731 | 20,991 | 30,336 | 29,818 |
| Biological sciences | 10,295 | 11,893 | 12,042 | 11,388 | 14,261 | 21,161 | 29,458 | 31,307 |
| Medical sciences | 2,466 | 1,804 | 6,409 | 6,431 | 6,065 | 6,641 | 8,902 | 9,338 |
| Other, n.e.c. | 2,520 | 2,791 | 662 | 773 | 1,036 | 855 | 375 | 265 |
| Psychology | 151 | 52 | 213 | 343 | 589 | 452 | 1,108 | 1,240 |
| Social sciences | 3,446 | 5,371 | 3,185 | 4,170 | 2,276 | 3,974 | 3,625 | 4,897 |
| Economics | 1,823 | 3,783 | 1,247 | 522 | 203 | 548 | 755 | 1,296 |
| Political science | 503 | 541 | 724 | 708 | 376 | 451 | 557 | 424 |
| Sociology | 642 | 390 | 790 | 788 | 188 | 214 | 427 | 632 |
| Other, n.e.c. | 478 | 157 | 424 | 2,152 | 1,509 | 2,761 | 1,886 | 2,545 |
| Other sciences, n.e.c. | 284 | 499 | 513 | 911 | 1,456 | 732 | 947 | 727 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-20. Non-Federal R&D expenditures at historically black colleges and universities,
by source of funds and science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Source and field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-------|-------|-------|--------|--------|--------|--------|--------|
| Total non-Federal | 7,743 | 6,944 | 5,000 | 11,167 | 12,529 | 16,833 | 22,618 | 23,465 |
| Source of funds | | | | | | | | |
| State and local governments .. | 1,712 | 826 | 1,150 | 1,163 | 2,528 | 4,475 | 6,883 | 7,588 |
| Industry | 647 | 809 | 1,371 | 1,746 | 1,555 | 3,162 | 3,666 | 4,979 |
| Institutional funds | 3,744 | 3,661 | 1,579 | 6,722 | 7,182 | 7,476 | 10,858 | 8,984 |
| All other sources | 1,640 | 1,648 | 900 | 1,536 | 1,264 | 1,720 | 1,211 | 1,914 |
| Field | | | | | | | | |
| Engineering, total | 461 | 731 | 705 | 1,987 | 2,069 | 2,149 | 2,521 | 1,806 |
| Aeronautical and astronautical | 9 | 8 | 7 | 7 | 21 | 28 | 103 | 0 |
| Chemical | 11 | 10 | 0 | 62 | 61 | 53 | 74 | 267 |
| Civil | 23 | 50 | 7 | 4 | 321 | 529 | 318 | 375 |
| Electrical | 256 | 191 | 157 | 436 | 742 | 557 | 857 | 455 |
| Mechanical | 61 | 135 | 124 | 340 | 432 | 260 | 321 | 306 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 0 |
| Other, n.e.c. | 101 | 337 | 410 | 1,138 | 492 | 722 | 848 | 403 |
| All sciences, total | 7,282 | 6,213 | 4,295 | 9,180 | 10,460 | 14,684 | 20,097 | 21,659 |
| Physical sciences | 1,045 | 921 | 870 | 2,200 | 1,679 | 2,007 | 2,686 | 3,386 |
| Astronomy | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chemistry | 685 | 692 | 577 | 1,888 | 1,359 | 1,500 | 1,326 | 1,112 |
| Physics | 129 | 227 | 220 | 312 | 320 | 507 | 1,317 | 2,210 |
| Other, n.e.c. | 231 | 0 | 73 | 0 | 0 | 0 | 43 | 64 |
| Environmental sciences | 453 | 251 | 306 | 282 | 346 | 283 | 653 | 2,072 |
| Atmospheric | 8 | 5 | 2 | 0 | 0 | 0 | 259 | 520 |
| Earth sciences | 48 | 40 | 34 | 41 | 64 | 78 | 278 | 209 |
| Oceanography | 12 | 9 | 8 | 33 | 2 | 25 | 25 | 26 |
| Other, n.e.c. | 385 | 197 | 262 | 208 | 280 | 180 | 91 | 1,317 |
| Mathematical sciences | 545 | 574 | 33 | 489 | 42 | 56 | 242 | 272 |
| Computer sciences | 33 | 7 | 13 | 47 | 94 | 135 | 389 | 610 |
| Life sciences | 3,773 | 3,881 | 2,400 | 5,256 | 5,808 | 7,300 | 11,170 | 11,164 |
| Agricultural sciences .. | 974 | 1,377 | 1,197 | 1,221 | 1,764 | 1,109 | 3,724 | 4,077 |
| Biological sciences | 1,189 | 1,686 | 492 | 1,205 | 1,577 | 3,829 | 4,583 | 4,160 |
| Medical sciences | 660 | 390 | 680 | 2,784 | 2,449 | 2,357 | 2,122 | 2,427 |
| Other, n.e.c. | 950 | 428 | 31 | 46 | 18 | 5 | 741 | 500 |
| Psychology | 22 | 6 | 8 | 9 | 39 | 42 | 386 | 466 |
| Social sciences | 922 | 508 | 637 | 847 | 2,315 | 4,665 | 4,348 | 2,942 |
| Economics | 84 | 137 | 63 | 112 | 87 | 290 | 109 | 232 |
| Political science | 320 | 121 | 210 | 286 | 352 | 718 | 599 | 554 |
| Sociology | 274 | 29 | 165 | 211 | 487 | 1,874 | 1,231 | 1,432 |
| Other, n.e.c. | 244 | 221 | 199 | 238 | 1,389 | 1,783 | 2,409 | 724 |
| Other sciences, n.e.c. | 489 | 65 | 28 | 50 | 137 | 196 | 223 | 747 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-21. R&D expenditures at universities and colleges,
by geographic division and source: fiscal year 1990

(Dollars in millions)

| Division | Total | Federal | Non-Federal |
|--------------------------|--------|---------|-------------|
| Total | 16,325 | 9,611 | 6,714 |
| New England | 1,430 | 991 | 439 |
| Middle Atlantic | 2,596 | 1,588 | 1,007 |
| East North Central | 2,252 | 1,240 | 1,012 |
| West North Central | 1,080 | 519 | 562 |
| South Atlantic | 3,005 | 1,807 | 1,197 |
| East South Central | 676 | 365 | 311 |
| West South Central | 1,543 | 677 | 866 |
| Mountain | 982 | 574 | 408 |
| Pacific | 2,711 | 1,822 | 889 |
| Outlying Areas | 49 | 27 | 22 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-22. R&D expenditures at doctorate-granting institutions,
by geographic division, State, and source of funds: fiscal year 1990

[Dollars in thousands]

| Division and State | Total | Federal Government | State and local governments | Industry | Institutional funds | All other sources |
|----------------------------|------------|--------------------|-----------------------------|-----------|---------------------|-------------------|
| Total | 16,057,003 | 9,453,757 | 1,298,659 | 1,114,503 | 2,982,116 | 1,207,968 |
| New England | 1,418,016 | 981,113 | 31,744 | 115,756 | 157,522 | 131,881 |
| Connecticut | 298,076 | 190,388 | 5,262 | 13,402 | 64,344 | 24,680 |
| Maine | 23,605 | 9,046 | 908 | 4,663 | 8,253 | 735 |
| Massachusetts | 898,808 | 649,104 | 14,081 | 86,125 | 53,644 | 95,854 |
| New Hampshire | 69,731 | 44,590 | 3,985 | 3,715 | 11,500 | 5,941 |
| Rhode Island | 82,634 | 57,430 | 5,119 | 4,378 | 13,237 | 2,470 |
| Vermont | 45,162 | 30,555 | 2,389 | 3,473 | 6,544 | 2,201 |
| Middle Atlantic | 2,560,015 | 1,567,920 | 152,948 | 194,545 | 400,094 | 244,508 |
| New Jersey | 319,797 | 135,078 | 46,278 | 17,528 | 96,322 | 24,591 |
| New York | 1,410,700 | 917,748 | 75,518 | 77,952 | 177,798 | 161,684 |
| Pennsylvania | 829,518 | 515,094 | 31,152 | 99,065 | 125,974 | 58,233 |
| East North Central | 2,236,182 | 1,233,011 | 199,541 | 161,373 | 453,549 | 188,708 |
| Illinois | 647,863 | 352,417 | 37,911 | 44,148 | 164,202 | 49,185 |
| Indiana | 240,696 | 134,953 | 19,449 | 18,165 | 52,059 | 16,070 |
| Michigan | 527,070 | 276,078 | 36,747 | 44,694 | 128,244 | 41,307 |
| Ohio | 457,189 | 260,537 | 46,349 | 37,385 | 61,520 | 51,398 |
| Wisconsin | 363,364 | 209,026 | 59,085 | 16,981 | 47,524 | 30,748 |
| West North Central | 1,069,658 | 514,999 | 155,745 | 80,435 | 246,810 | 71,669 |
| Iowa | 232,147 | 113,268 | 29,500 | 12,354 | 67,301 | 9,724 |
| Kansas | 114,651 | 43,478 | 25,523 | 7,613 | 33,491 | 4,346 |
| Minnesota | 292,046 | 143,810 | 47,437 | 18,086 | 53,399 | 29,314 |
| Missouri | 281,133 | 152,398 | 18,469 | 28,082 | 59,494 | 22,690 |
| Nebraska | 105,373 | 34,356 | 27,976 | 11,075 | 28,134 | 3,832 |
| North Dakota | 29,966 | 20,815 | 1,061 | 2,845 | 4,019 | 1,226 |
| South Dakota | 14,342 | 6,874 | 5,779 | 380 | 972 | 337 |
| South Atlantic | 2,955,904 | 1,776,382 | 289,181 | 212,193 | 547,989 | 130,159 |
| Delaware | 40,119 | 17,588 | 3,139 | 4,397 | 11,751 | 3,244 |
| District of Columbia | 112,146 | 86,292 | 465 | 8,017 | 10,539 | 6,833 |
| Florida | 433,413 | 223,232 | 33,305 | 28,440 | 122,097 | 26,339 |
| Georgia | 445,011 | 212,443 | 42,638 | 36,990 | 142,197 | 10,743 |
| Maryland | 977,593 | 724,468 | 71,426 | 42,044 | 108,922 | 30,733 |
| North Carolina | 441,860 | 276,795 | 64,923 | 43,372 | 40,761 | 16,009 |
| South Carolina | 137,269 | 45,718 | 17,384 | 12,931 | 50,859 | 10,377 |
| Virginia | 321,547 | 170,128 | 54,703 | 25,965 | 46,627 | 24,124 |
| West Virginia | 46,946 | 19,718 | 1,198 | 10,037 | 14,236 | 1,757 |
| East South Central | 647,786 | 340,197 | 83,894 | 45,954 | 132,614 | 45,127 |
| Alabama | 239,556 | 124,648 | 25,752 | 18,662 | 50,803 | 19,691 |
| Kentucky | 90,880 | 38,249 | 6,684 | 8,123 | 33,258 | 4,566 |
| Mississippi | 85,229 | 40,343 | 20,745 | 8,171 | 9,458 | 6,512 |
| Tennessee | 232,121 | 136,957 | 30,713 | 10,998 | 39,095 | 14,358 |
| West South Central | 1,510,365 | 659,763 | 193,840 | 98,196 | 390,884 | 167,682 |
| Arkansas | 48,861 | 17,485 | 11,826 | 4,064 | 12,451 | 3,035 |
| Louisiana | 207,038 | 82,769 | 43,673 | 10,168 | 55,010 | 15,418 |
| Oklahoma | 130,650 | 37,020 | 7,665 | 6,872 | 70,398 | 8,695 |
| Texas | 1,123,816 | 522,489 | 130,676 | 77,092 | 253,025 | 140,534 |
| Mountain | 981,830 | 574,380 | 71,295 | 77,973 | 203,386 | 54,796 |
| Arizona | 260,187 | 122,259 | 7,318 | 18,066 | 97,013 | 15,531 |
| Colorado | 249,958 | 179,978 | 11,637 | 15,992 | 22,465 | 19,886 |
| Idaho | 36,570 | 14,361 | 8,156 | 4,206 | 9,596 | 251 |
| Montana | 34,980 | 12,520 | 7,885 | 4,266 | 10,147 | 162 |
| Nevada | 38,301 | 20,689 | 2,418 | 4,556 | 9,201 | 1,437 |
| New Mexico | 151,927 | 85,747 | 14,776 | 21,509 | 19,399 | 10,496 |
| Utah | 187,076 | 126,619 | 17,049 | 7,377 | 29,237 | 6,794 |
| Wyoming | 22,831 | 12,207 | 2,056 | 2,001 | 6,328 | 239 |
| Pacific | 2,633,176 | 1,781,579 | 113,091 | 127,762 | 439,260 | 171,484 |
| Alaska | 65,571 | 31,896 | 2,205 | 4,100 | 23,636 | 3,734 |
| California | 2,007,361 | 1,369,315 | 51,357 | 91,001 | 355,615 | 140,073 |
| Hawaii | 76,525 | 42,665 | 27,487 | 1,585 | 3,568 | 1,220 |
| Oregon | 171,550 | 107,466 | 22,568 | 6,338 | 19,013 | 16,165 |
| Washington | 312,169 | 230,237 | 9,474 | 24,738 | 37,428 | 10,292 |
| Outlying Areas | 44,071 | 24,413 | 7,380 | 316 | 10,008 | 1,954 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-23. R&D expenditures at doctorate-granting institutions,
by geographic division and State: fiscal years 1983-90

(Dollars in thousands)

| Division and State | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|----------------------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|
| Total | 7,755,419 | 8,483,497 | 9,544,538 | 10,769,576 | 11,997,969 | 13,286,901 | 14,762,275 | 16,057,003 |
| New England | 784,016 | 851,745 | 948,319 | 1,039,272 | 1,115,314 | 1,234,706 | 1,356,621 | 1,418,016 |
| Connecticut | 164,350 | 176,843 | 194,928 | 212,815 | 230,790 | 254,958 | 284,410 | 298,076 |
| Maine | 19,454 | 17,107 | 20,621 | 19,315 | 16,952 | 17,341 | 19,974 | 23,605 |
| Massachusetts | 505,040 | 554,387 | 608,887 | 673,378 | 719,581 | 790,391 | 867,521 | 898,808 |
| New Hampshire | 30,301 | 31,865 | 39,680 | 44,330 | 50,928 | 57,658 | 62,172 | 69,731 |
| Rhode Island | 46,066 | 49,275 | 56,597 | 59,735 | 65,516 | 77,543 | 79,801 | 82,634 |
| Vermont | 18,805 | 22,268 | 27,606 | 29,699 | 31,547 | 36,815 | 42,743 | 45,162 |
| Middle Atlantic | 1,245,671 | 1,346,571 | 1,539,657 | 1,765,861 | 1,954,919 | 2,165,589 | 2,376,356 | 2,560,015 |
| New Jersey | 114,411 | 122,573 | 142,075 | 181,578 | 215,580 | 244,307 | 283,087 | 319,797 |
| New York | 763,894 | 822,091 | 938,944 | 1,037,116 | 1,127,404 | 1,246,170 | 1,332,139 | 1,410,700 |
| Pennsylvania | 367,366 | 401,907 | 458,638 | 547,167 | 611,935 | 675,112 | 761,130 | 829,518 |
| East North Central | 1,099,084 | 1,229,483 | 1,353,557 | 1,509,138 | 1,709,481 | 1,897,912 | 2,081,007 | 2,236,182 |
| Illinois | 312,037 | 357,285 | 392,793 | 438,991 | 498,221 | 546,311 | 602,558 | 647,863 |
| Indiana | 133,671 | 144,994 | 158,983 | 176,374 | 188,086 | 211,813 | 227,266 | 240,696 |
| Michigan | 249,850 | 283,643 | 301,235 | 341,775 | 396,420 | 438,420 | 487,023 | 527,070 |
| Ohio | 209,839 | 231,339 | 261,445 | 287,601 | 329,343 | 381,895 | 427,345 | 457,189 |
| Wisconsin | 193,687 | 212,222 | 239,101 | 264,397 | 297,411 | 319,484 | 336,815 | 363,364 |
| West North Central | 559,845 | 589,042 | 646,122 | 738,621 | 801,409 | 869,527 | 965,122 | 1,069,658 |
| Iowa | 119,646 | 119,272 | 132,251 | 146,312 | 157,539 | 181,481 | 209,327 | 232,147 |
| Kansas | 63,655 | 71,348 | 80,144 | 90,579 | 93,931 | 99,655 | 107,856 | 114,651 |
| Minnesota | 151,441 | 158,223 | 173,322 | 201,743 | 222,381 | 236,115 | 258,614 | 292,046 |
| Missouri | 135,668 | 150,414 | 160,985 | 185,935 | 205,597 | 232,148 | 255,009 | 281,133 |
| Nebraska | 53,753 | 53,801 | 60,612 | 71,239 | 74,654 | 83,357 | 93,916 | 105,373 |
| North Dakota | 25,269 | 27,459 | 29,649 | 31,840 | 35,912 | 24,444 | 27,951 | 29,966 |
| South Dakota | 10,413 | 8,525 | 9,159 | 10,973 | 11,395 | 12,327 | 12,449 | 14,342 |
| South Atlantic | 1,219,029 | 1,380,470 | 1,578,252 | 1,808,052 | 2,092,596 | 2,327,345 | 2,720,699 | 2,955,904 |
| Delaware | 19,080 | 21,343 | 23,605 | 28,798 | 31,681 | 32,023 | 37,194 | 40,119 |
| District of Columbia | 55,409 | 62,212 | 64,692 | 73,170 | 85,470 | 94,851 | 111,325 | 112,146 |
| Florida | 162,153 | 184,723 | 203,385 | 228,077 | 278,847 | 298,933 | 385,556 | 433,413 |
| Georgia | 194,293 | 217,197 | 231,068 | 290,291 | 329,937 | 371,360 | 417,287 | 445,011 |
| Maryland | 414,904 | 472,226 | 540,242 | 605,017 | 722,393 | 795,718 | 921,848 | 977,593 |
| North Carolina | 180,364 | 208,582 | 254,370 | 281,929 | 313,819 | 366,995 | 419,848 | 441,860 |
| South Carolina | 52,621 | 59,526 | 68,768 | 86,603 | 95,811 | 102,160 | 120,137 | 137,269 |
| Virginia | 120,567 | 134,480 | 169,738 | 189,876 | 207,934 | 234,887 | 268,136 | 321,547 |
| West Virginia | 19,638 | 20,181 | 22,384 | 24,291 | 26,704 | 30,418 | 39,368 | 46,946 |
| East South Central | 252,102 | 282,128 | 328,033 | 392,620 | 443,821 | 520,939 | 584,399 | 647,786 |
| Alabama | 70,051 | 86,542 | 104,137 | 133,410 | 152,925 | 180,809 | 209,564 | 239,556 |
| Kentucky | 49,498 | 52,647 | 53,790 | 68,552 | 78,008 | 91,948 | 83,998 | 90,880 |
| Mississippi | 47,534 | 49,371 | 52,618 | 59,223 | 57,622 | 63,647 | 75,175 | 85,229 |
| Tennessee | 85,019 | 93,568 | 117,488 | 131,435 | 155,266 | 184,535 | 215,662 | 232,121 |
| West South Central | 721,740 | 779,166 | 884,827 | 980,836 | 1,092,722 | 1,208,783 | 1,350,929 | 1,510,365 |
| Arkansas | 27,315 | 26,616 | 30,051 | 35,379 | 35,529 | 37,955 | 43,676 | 48,861 |
| Louisiana | 95,951 | 103,656 | 125,478 | 134,200 | 148,563 | 165,623 | 180,032 | 207,038 |
| Oklahoma | 87,072 | 91,386 | 96,407 | 89,020 | 99,363 | 113,931 | 113,279 | 130,650 |
| Texas | 511,402 | 557,508 | 632,891 | 722,237 | 809,267 | 891,274 | 1,013,942 | 1,123,816 |
| Mountain | 500,353 | 524,510 | 583,082 | 661,287 | 719,575 | 796,533 | 874,200 | 981,830 |
| Arizona | 112,660 | 118,818 | 136,835 | 160,678 | 181,263 | 199,178 | 223,531 | 260,187 |
| Colorado | 139,233 | 149,494 | 158,785 | 175,760 | 185,699 | 206,287 | 226,555 | 249,958 |
| Idaho | 17,751 | 19,626 | 20,861 | 23,729 | 24,779 | 30,789 | 35,191 | 36,570 |
| Montana | 22,952 | 24,198 | 24,327 | 26,438 | 29,425 | 32,069 | 32,450 | 34,080 |
| Nevada | 21,504 | 17,513 | 20,499 | 24,535 | 28,070 | 32,665 | 34,146 | 38,301 |
| New Mexico | 82,333 | 84,429 | 104,988 | 118,569 | 132,145 | 129,087 | 136,189 | 151,927 |
| Utah | 88,801 | 94,697 | 100,712 | 112,915 | 120,878 | 146,029 | 164,828 | 187,076 |
| Wyoming | 15,119 | 15,735 | 16,075 | 18,663 | 17,316 | 20,429 | 23,310 | 22,831 |
| Pacific | 1,347,583 | 1,471,899 | 1,651,495 | 1,838,812 | 2,030,817 | 2,226,572 | 2,411,001 | 2,633,176 |
| Alaska | 37,736 | 40,160 | 42,584 | 45,008 | 47,432 | 49,856 | 56,701 | 65,571 |
| California | 998,086 | 1,092,604 | 1,230,895 | 1,379,262 | 1,554,787 | 1,722,075 | 1,845,555 | 2,007,361 |
| Hawaii | 45,401 | 51,051 | 54,025 | 57,383 | 57,345 | 64,278 | 70,733 | 76,525 |
| Oregon | 95,959 | 103,833 | 114,151 | 124,195 | 135,326 | 148,309 | 161,127 | 171,550 |
| Washington | 170,401 | 183,251 | 209,840 | 232,964 | 235,927 | 242,054 | 276,885 | 312,169 |
| Outlying Areas | 25,996 | 28,483 | 31,194 | 35,077 | 37,315 | 38,995 | 41,941 | 44,071 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-24. Federally financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-90

[Dollars in thousands]

| Division and State | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 4,905,224 | 5,336,924 | 5,962,822 | 6,600,405 | 7,235,732 | 8,070,152 | 8,836,691 | 9,453,757 |
| New England | 596,973 | 643,579 | 702,600 | 754,047 | 808,738 | 884,476 | 944,086 | 981,113 |
| Connecticut | 123,925 | 133,433 | 139,748 | 145,583 | 155,717 | 173,912 | 187,212 | 190,388 |
| Maine | 8,313 | 8,444 | 10,653 | 8,584 | 7,787 | 7,048 | 8,288 | 9,046 |
| Massachusetts | 392,141 | 422,571 | 463,575 | 504,837 | 536,999 | 580,783 | 621,789 | 649,104 |
| New Hampshire | 20,276 | 21,824 | 26,445 | 29,929 | 34,633 | 39,077 | 41,816 | 44,590 |
| Rhode Island | 39,468 | 42,375 | 43,222 | 45,266 | 51,313 | 58,117 | 56,446 | 57,430 |
| Vermont | 12,850 | 14,932 | 18,957 | 19,848 | 22,289 | 25,539 | 28,535 | 30,555 |
| Middle Atlantic | 835,857 | 903,402 | 1,017,154 | 1,138,986 | 1,251,925 | 1,366,830 | 1,454,015 | 1,567,920 |
| New Jersey | 60,452 | 66,158 | 75,902 | 83,313 | 96,048 | 106,630 | 118,260 | 135,078 |
| New York | 525,599 | 564,892 | 638,759 | 713,836 | 769,965 | 832,785 | 866,762 | 917,748 |
| Pennsylvania | 249,806 | 272,352 | 302,493 | 341,837 | 385,912 | 427,415 | 468,993 | 515,094 |
| East North Central | 680,395 | 747,553 | 814,086 | 889,256 | 976,900 | 1,095,494 | 1,178,005 | 1,233,011 |
| Illinois | 204,722 | 223,090 | 240,113 | 258,345 | 293,929 | 315,809 | 338,082 | 352,417 |
| Indiana | 83,705 | 86,470 | 97,004 | 106,979 | 111,413 | 130,777 | 136,040 | 134,953 |
| Michigan | 149,751 | 165,661 | 175,168 | 188,844 | 207,709 | 242,766 | 263,506 | 276,078 |
| Ohio | 131,775 | 145,823 | 161,055 | 177,596 | 193,614 | 217,622 | 242,559 | 260,537 |
| Wisconsin | 114,442 | 126,509 | 140,746 | 156,992 | 170,235 | 188,520 | 197,818 | 209,026 |
| West North Central | 279,424 | 291,922 | 314,104 | 354,938 | 390,314 | 431,823 | 482,594 | 514,999 |
| Iowa | 61,524 | 62,252 | 64,133 | 69,932 | 76,915 | 87,855 | 103,360 | 113,268 |
| Kansas | 26,340 | 29,156 | 31,088 | 35,552 | 37,386 | 42,402 | 44,292 | 43,478 |
| Minnesota | 79,637 | 79,489 | 87,776 | 100,308 | 109,003 | 119,789 | 132,880 | 143,810 |
| Missouri | 81,146 | 86,759 | 92,544 | 102,592 | 113,146 | 124,552 | 139,677 | 152,398 |
| Nebraska | 17,133 | 19,702 | 24,671 | 28,703 | 33,350 | 35,097 | 36,823 | 34,356 |
| North Dakota | 9,424 | 10,526 | 11,628 | 12,729 | 15,385 | 16,285 | 19,396 | 20,815 |
| South Dakota | 4,220 | 4,038 | 2,264 | 5,122 | 5,129 | 5,843 | 6,166 | 6,874 |
| South Atlantic | 811,636 | 908,338 | 1,014,345 | 1,145,399 | 1,290,980 | 1,448,001 | 1,678,141 | 1,776,382 |
| Delaware | 9,583 | 10,811 | 10,626 | 12,578 | 13,662 | 13,708 | 17,083 | 17,588 |
| District of Columbia | 41,752 | 47,851 | 49,497 | 53,933 | 62,968 | 70,850 | 84,274 | 86,292 |
| Florida | 84,994 | 91,545 | 100,547 | 116,349 | 129,474 | 151,012 | 200,742 | 223,232 |
| Georgia | 101,467 | 111,312 | 116,570 | 136,997 | 151,025 | 180,102 | 204,673 | 212,443 |
| Maryland | 338,402 | 393,938 | 440,431 | 495,742 | 575,176 | 617,993 | 705,963 | 724,468 |
| North Carolina | 124,260 | 134,176 | 156,591 | 177,301 | 195,177 | 229,191 | 261,896 | 276,795 |
| South Carolina | 23,711 | 24,040 | 29,857 | 31,963 | 34,350 | 39,759 | 41,627 | 45,718 |
| Virginia | 77,255 | 83,668 | 97,874 | 107,005 | 116,137 | 129,450 | 144,544 | 170,128 |
| West Virginia | 10,212 | 10,997 | 12,352 | 13,531 | 13,011 | 15,936 | 17,339 | 19,718 |
| East South Central | 122,472 | 139,945 | 159,413 | 184,372 | 213,776 | 258,482 | 304,250 | 340,197 |
| Alabama | 41,277 | 50,098 | 60,558 | 69,993 | 85,382 | 104,259 | 114,892 | 124,648 |
| Kentucky | 18,080 | 19,317 | 19,241 | 24,963 | 30,778 | 33,162 | 32,963 | 38,249 |
| Mississippi | 14,606 | 17,815 | 19,053 | 21,878 | 22,492 | 23,357 | 32,123 | 40,343 |
| Tennessee | 48,509 | 52,715 | 60,561 | 67,538 | 75,124 | 99,704 | 124,272 | 136,957 |
| West South Central | 323,145 | 345,134 | 412,922 | 452,919 | 495,789 | 561,514 | 604,827 | 659,763 |
| Arkansas | 11,233 | 10,004 | 11,551 | 12,385 | 12,257 | 14,039 | 14,213 | 17,485 |
| Louisiana | 30,987 | 34,164 | 41,677 | 47,497 | 54,367 | 60,963 | 69,219 | 82,769 |
| Oklahoma | 25,204 | 25,965 | 30,420 | 24,290 | 25,880 | 31,391 | 33,067 | 37,020 |
| Texas | 255,721 | 275,001 | 329,274 | 368,747 | 403,285 | 455,121 | 488,328 | 522,489 |
| Mountain | 304,755 | 317,142 | 358,505 | 398,030 | 417,796 | 472,406 | 513,796 | 574,380 |
| Arizona | 55,452 | 57,183 | 65,463 | 76,615 | 80,955 | 94,630 | 105,367 | 122,259 |
| Colorado | 95,783 | 99,713 | 112,167 | 125,715 | 136,003 | 152,091 | 167,043 | 179,978 |
| Idaho | 11,726 | 12,987 | 13,963 | 9,328 | 8,988 | 11,196 | 12,585 | 14,361 |
| Montana | 8,157 | 7,363 | 9,163 | 9,082 | 11,299 | 13,635 | 11,552 | 12,520 |
| Nevada | 9,389 | 10,706 | 11,614 | 13,265 | 14,572 | 18,077 | 17,615 | 20,689 |
| New Mexico | 58,139 | 57,154 | 68,166 | 76,334 | 75,923 | 73,835 | 76,777 | 85,747 |
| Utah | 59,518 | 64,336 | 70,517 | 78,370 | 81,355 | 97,806 | 109,053 | 126,619 |
| Wyoming | 6,591 | 7,700 | 7,452 | 9,321 | 8,701 | 11,136 | 13,804 | 12,207 |
| Pacific | 937,272 | 1,025,517 | 1,153,973 | 1,264,346 | 1,370,484 | 1,528,784 | 1,652,859 | 1,781,579 |
| Alaska | 13,859 | 15,775 | 17,691 | 19,607 | 21,523 | 23,441 | 26,659 | 31,896 |
| California | 716,548 | 779,050 | 876,737 | 973,969 | 1,066,099 | 1,195,035 | 1,281,335 | 1,369,315 |
| Hawaii | 27,633 | 32,701 | 34,886 | 35,322 | 34,472 | 38,560 | 40,574 | 42,665 |
| Oregon | 58,157 | 65,298 | 68,262 | 73,360 | 81,932 | 90,126 | 99,141 | 107,466 |
| Washington | 121,075 | 132,693 | 156,397 | 162,088 | 166,458 | 181,622 | 205,150 | 230,237 |
| Outlying Areas | 13,295 | 14,392 | 15,720 | 18,112 | 19,030 | 22,342 | 24,118 | 24,413 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-25. State and local government-financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-1990

[Dollars in thousands]

| Division and State | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|----------------------------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|
| Total | 613,446 | 677,504 | 740,262 | 901,143 | 1,006,898 | 1,088,892 | 1,202,546 | 1,298,659 |
| New England | 21,420 | 15,582 | 16,936 | 26,436 | 27,186 | 32,948 | 32,965 | 31,744 |
| Connecticut | 4,131 | 3,790 | 3,602 | 4,361 | 2,495 | 4,013 | 5,430 | 5,262 |
| Maine | 3,460 | 1,587 | 1,246 | 796 | 315 | 543 | 584 | 908 |
| Massachusetts | 7,318 | 5,279 | 7,001 | 14,419 | 18,390 | 20,672 | 18,529 | 14,081 |
| New Hampshire | 1,959 | 2,445 | 2,680 | 3,384 | 2,045 | 2,536 | 2,646 | 3,985 |
| Rhode Island | 3,227 | 947 | 833 | 1,547 | 2,136 | 2,886 | 3,276 | 5,119 |
| Vermont | 1,325 | 1,534 | 1,574 | 1,929 | 1,805 | 2,298 | 2,500 | 2,389 |
| Middle Atlantic | 46,919 | 55,811 | 73,079 | 95,129 | 115,009 | 123,986 | 146,507 | 152,948 |
| New Jersey | 10,305 | 11,297 | 16,637 | 28,093 | 37,489 | 36,815 | 45,150 | 46,278 |
| New York | 32,054 | 35,485 | 42,731 | 47,625 | 53,961 | 61,593 | 69,072 | 75,518 |
| Pennsylvania | 4,560 | 9,029 | 13,711 | 19,411 | 23,559 | 25,578 | 32,285 | 31,152 |
| East North Central | 100,819 | 109,721 | 115,799 | 139,210 | 161,540 | 181,083 | 192,219 | 199,541 |
| Illinois | 19,785 | 21,008 | 23,793 | 29,068 | 30,610 | 29,329 | 33,881 | 37,911 |
| Indiana | 10,509 | 10,928 | 12,155 | 17,478 | 15,772 | 16,813 | 18,911 | 19,449 |
| Michigan | 18,762 | 23,458 | 23,940 | 25,976 | 30,320 | 33,471 | 35,983 | 36,747 |
| Ohio | 14,966 | 15,716 | 15,304 | 20,650 | 35,038 | 47,437 | 48,072 | 46,349 |
| Wisconsin | 36,797 | 38,611 | 40,607 | 46,038 | 49,800 | 54,033 | 55,372 | 59,085 |
| West North Central | 74,510 | 87,919 | 97,812 | 110,056 | 120,405 | 117,298 | 134,843 | 155,745 |
| Iowa | 17,580 | 17,232 | 13,387 | 13,655 | 16,653 | 20,495 | 24,839 | 29,500 |
| Kansas | 17,045 | 18,104 | 21,031 | 19,721 | 20,031 | 21,092 | 24,159 | 25,523 |
| Minnesota | 15,576 | 16,123 | 19,439 | 31,819 | 37,287 | 39,297 | 42,542 | 47,437 |
| Missouri | 9,679 | 9,242 | 10,758 | 11,397 | 11,753 | 13,050 | 14,509 | 18,469 |
| Nebraska | 2,057 | 14,529 | 14,685 | 16,012 | 16,161 | 17,569 | 22,971 | 27,976 |
| North Dakota | 12,093 | 12,291 | 12,835 | 13,254 | 13,731 | 17,713 | 918 | 1,061 |
| South Dakota | 480 | 398 | 5,677 | 4,198 | 4,789 | 5,082 | 4,905 | 5,779 |
| South Atlantic | 96,135 | 120,724 | 152,140 | 181,817 | 212,416 | 235,759 | 261,789 | 289,181 |
| Delaware | 837 | 348 | 767 | 1,645 | 1,995 | 2,456 | 2,603 | 3,139 |
| District of Columbia | 274 | 233 | 353 | 289 | 484 | 264 | 480 | 465 |
| Florida | 7,212 | 7,264 | 7,639 | 9,994 | 13,889 | 19,498 | 25,655 | 33,305 |
| Georgia | 3,176 | 22,041 | 24,394 | 33,372 | 39,621 | 40,161 | 40,141 | 42,638 |
| Maryland | 28,176 | 28,957 | 33,898 | 38,511 | 50,198 | 56,470 | 63,644 | 71,426 |
| North Carolina | 32,131 | 33,502 | 48,193 | 48,926 | 54,897 | 58,048 | 61,259 | 64,923 |
| South Carolina | 8,988 | 10,558 | 11,057 | 14,598 | 14,061 | 15,594 | 17,421 | 17,384 |
| Virginia | 14,554 | 16,617 | 24,512 | 33,695 | 36,400 | 42,198 | 49,331 | 54,703 |
| West Virginia | 787 | 1,204 | 1,327 | 787 | 871 | 1,070 | 1,255 | 1,198 |
| East South Central | 35,634 | 50,324 | 62,117 | 78,739 | 73,146 | 82,824 | 78,309 | 83,894 |
| Alabama | 10,526 | 9,972 | 15,461 | 22,412 | 16,449 | 21,263 | 18,339 | 25,752 |
| Kentucky | 13,155 | 12,510 | 11,278 | 11,588 | 10,841 | 13,169 | 7,113 | 6,684 |
| Mississippi | 1,177 | 16,399 | 16,730 | 21,375 | 16,667 | 18,992 | 20,486 | 20,745 |
| Tennessee | 10,776 | 11,443 | 18,648 | 23,364 | 29,189 | 29,400 | 32,371 | 30,713 |
| West South Central | 95,533 | 107,258 | 109,800 | 131,001 | 136,685 | 152,372 | 181,811 | 193,840 |
| Arkansas | 6,366 | 6,600 | 7,787 | 9,390 | 9,352 | 9,701 | 12,186 | 11,826 |
| Louisiana | 29,236 | 30,355 | 31,592 | 32,218 | 31,850 | 38,556 | 40,758 | 43,673 |
| Oklahoma | 2,761 | 3,423 | 2,788 | 2,663 | 3,463 | 4,670 | 5,062 | 7,665 |
| Texas | 57,170 | 66,880 | 67,633 | 86,730 | 92,020 | 99,411 | 123,805 | 130,676 |
| Mountain | 57,789 | 46,668 | 49,084 | 58,849 | 66,861 | 64,602 | 69,799 | 71,295 |
| Arizona | 22,313 | 6,192 | 7,671 | 8,024 | 8,965 | 5,486 | 7,949 | 7,318 |
| Colorado | 8,202 | 9,230 | 6,301 | 6,762 | 8,771 | 9,334 | 10,679 | 11,637 |
| Idaho | 1,882 | 2,093 | 1,885 | 6,187 | 8,314 | 10,507 | 8,112 | 8,156 |
| Montana | 6,354 | 8,463 | 6,726 | 7,719 | 7,325 | 6,649 | 7,919 | 7,885 |
| Nevada | 702 | 319 | 1,103 | 793 | 1,037 | 2,321 | 1,806 | 2,418 |
| New Mexico | 8,740 | 10,537 | 14,928 | 17,331 | 17,908 | 13,912 | 14,612 | 14,776 |
| Utah | 9,056 | 9,509 | 9,613 | 10,869 | 13,412 | 15,290 | 17,183 | 17,049 |
| Wyoming | 540 | 325 | 857 | 1,164 | 1,129 | 1,163 | 1,539 | 2,056 |
| Pacific | 76,988 | 74,945 | 54,088 | 69,645 | 83,092 | 89,471 | 97,242 | 113,091 |
| Alaska | 4,450 | 3,054 | 3,117 | 3,182 | 2,999 | 1,847 | 2,101 | 2,205 |
| California | 18,588 | 15,792 | 15,260 | 23,762 | 36,570 | 41,429 | 43,459 | 51,357 |
| Hawaii | 15,441 | 15,715 | 16,296 | 18,771 | 19,317 | 21,469 | 24,759 | 27,487 |
| Oregon | 14,518 | 15,551 | 16,928 | 18,423 | 18,645 | 19,399 | 20,860 | 22,568 |
| Washington | 23,991 | 24,833 | 2,487 | 5,507 | 5,561 | 5,327 | 6,063 | 9,474 |
| Outlying Areas | 7,699 | 8,552 | 9,407 | 10,261 | 10,558 | 8,489 | 7,062 | 7,380 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

BEST COPY AVAILABLE

Table B-26. Industry-financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-1990

(Dollars in thousands)

| Division and State | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|-----------|
| Total | 380,486 | 465,818 | 549,842 | 687,782 | 776,507 | 856,855 | 977,729 | 1,114,503 |
| New England | 41,802 | 56,117 | 66,590 | 74,813 | 86,493 | 96,433 | 107,101 | 115,756 |
| Connecticut | 3,059 | 5,177 | 6,307 | 5,892 | 9,298 | 9,974 | 11,630 | 13,402 |
| Maine | 1,404 | 2,320 | 1,559 | 2,856 | 2,051 | 2,823 | 4,002 | 4,663 |
| Massachusetts | 33,574 | 43,200 | 51,182 | 56,556 | 64,806 | 69,455 | 78,727 | 86,125 |
| New Hampshire | 573 | 1,063 | 1,554 | 1,578 | 2,081 | 2,397 | 2,951 | 3,715 |
| Rhode Island | 1,527 | 2,227 | 3,375 | 4,500 | 5,380 | 6,645 | 6,305 | 4,378 |
| Vermont | 1,665 | 2,130 | 2,613 | 3,331 | 2,877 | 3,139 | 3,486 | 3,473 |
| Middle Atlantic | 70,980 | 87,979 | 102,975 | 129,780 | 141,652 | 155,846 | 178,936 | 194,545 |
| New Jersey | 3,756 | 5,242 | 6,108 | 9,722 | 11,910 | 14,371 | 16,595 | 17,528 |
| New York | 34,043 | 42,612 | 48,818 | 58,475 | 63,496 | 63,263 | 70,634 | 77,952 |
| Pennsylvania | 33,181 | 40,125 | 48,049 | 61,583 | 66,246 | 78,212 | 91,707 | 99,065 |
| East North Central | 52,955 | 60,017 | 76,678 | 85,000 | 99,841 | 112,578 | 147,578 | 161,373 |
| Illinois | 11,597 | 11,654 | 16,141 | 19,692 | 23,791 | 29,173 | 38,990 | 44,148 |
| Indiana | 13,010 | 13,588 | 14,884 | 14,967 | 17,203 | 16,244 | 18,419 | 18,165 |
| Michigan | 9,415 | 13,548 | 19,376 | 21,165 | 25,336 | 28,063 | 36,310 | 44,694 |
| Ohio | 12,980 | 14,159 | 17,048 | 18,916 | 22,265 | 22,940 | 37,591 | 37,385 |
| Wisconsin | 5,953 | 7,068 | 9,229 | 10,260 | 11,446 | 14,158 | 16,268 | 16,981 |
| West North Central | 25,398 | 32,856 | 37,437 | 47,238 | 52,745 | 61,172 | 69,373 | 80,435 |
| Iowa | 4,447 | 4,713 | 4,687 | 4,749 | 6,212 | 9,488 | 14,711 | 12,354 |
| Kansas | 2,088 | 2,167 | 2,492 | 3,798 | 5,433 | 5,648 | 5,187 | 7,613 |
| Minnesota | 5,962 | 8,053 | 8,135 | 11,157 | 11,056 | 10,670 | 12,389 | 18,086 |
| Missouri | 8,570 | 12,162 | 15,587 | 18,691 | 19,325 | 23,494 | 25,151 | 28,082 |
| Nebraska | 2,611 | 3,335 | 3,622 | 5,338 | 6,669 | 8,594 | 9,098 | 11,075 |
| North Dakota | 1,073 | 2,052 | 2,296 | 3,072 | 3,578 | 2,742 | 2,521 | 2,845 |
| South Dakota | 647 | 374 | 618 | 433 | 472 | 536 | 316 | 380 |
| South Atlantic | 69,062 | 84,063 | 100,928 | 118,269 | 134,664 | 156,992 | 178,374 | 212,193 |
| Delaware | 3,075 | 2,752 | 2,809 | 3,551 | 3,659 | 3,558 | 4,073 | 4,397 |
| District of Columbia | 1,455 | 3,026 | 4,397 | 3,558 | 4,192 | 6,504 | 7,924 | 8,017 |
| Florida | 10,039 | 12,652 | 18,525 | 20,219 | 20,334 | 18,019 | 20,660 | 28,440 |
| Georgia | 20,799 | 25,997 | 26,173 | 30,545 | 34,114 | 34,391 | 35,335 | 38,990 |
| Maryland | 11,426 | 13,260 | 19,907 | 18,536 | 25,577 | 28,750 | 35,185 | 45,044 |
| North Carolina | 8,488 | 10,770 | 17,062 | 21,564 | 23,825 | 36,628 | 41,375 | 43,372 |
| South Carolina | 3,222 | 3,661 | 4,385 | 5,908 | 6,184 | 8,693 | 7,906 | 12,931 |
| Virginia | 9,957 | 11,260 | 12,076 | 13,484 | 15,895 | 19,672 | 21,953 | 25,965 |
| West Virginia | 601 | 685 | 594 | 904 | 884 | 777 | 3,963 | 10,037 |
| East South Central | 16,296 | 20,929 | 23,988 | 30,804 | 32,766 | 37,170 | 39,580 | 45,954 |
| Alabama | 5,773 | 7,771 | 8,915 | 10,923 | 10,916 | 12,703 | 16,242 | 18,662 |
| Kentucky | 3,329 | 4,378 | 4,768 | 8,173 | 6,715 | 5,591 | 7,516 | 8,123 |
| Mississippi | 1,922 | 2,184 | 2,687 | 2,995 | 4,170 | 4,909 | 5,334 | 8,171 |
| Tennessee | 5,272 | 6,596 | 7,618 | 8,713 | 10,965 | 14,967 | 10,488 | 10,998 |
| West South Central | 37,708 | 41,054 | 51,957 | 55,507 | 64,230 | 75,470 | 81,862 | 98,196 |
| Arkansas | 1,746 | 1,593 | 2,372 | 3,068 | 2,829 | 3,865 | 4,123 | 4,064 |
| Louisiana | 5,105 | 7,105 | 6,048 | 6,253 | 7,154 | 8,088 | 8,193 | 10,168 |
| Oklahoma | 5,508 | 5,980 | 6,541 | 7,083 | 7,078 | 7,855 | 5,667 | 6,872 |
| Texas | 25,349 | 26,376 | 36,996 | 39,103 | 47,169 | 55,662 | 63,879 | 77,092 |
| Mountain | 37,733 | 46,605 | 51,440 | 53,961 | 63,329 | 59,438 | 61,891 | 77,973 |
| Arizona | 9,555 | 9,635 | 11,985 | 14,411 | 17,456 | 15,196 | 12,500 | 18,066 |
| Colorado | 11,388 | 12,543 | 12,305 | 8,766 | 8,728 | 11,044 | 14,381 | 15,992 |
| Idaho | 2,260 | 2,584 | 2,826 | 2,787 | 2,899 | 3,654 | 4,199 | 4,206 |
| Montana | 1,438 | 2,255 | 2,066 | 2,717 | 3,197 | 3,129 | 3,242 | 4,266 |
| Nevada | 2,770 | 2,719 | 2,715 | 3,397 | 3,976 | 3,563 | 4,098 | 4,556 |
| New Mexico | 4,346 | 10,583 | 12,650 | 14,770 | 20,123 | 15,837 | 16,433 | 21,509 |
| Utah | 4,236 | 4,752 | 5,072 | 5,334 | 5,734 | 5,215 | 5,503 | 7,377 |
| Wyoming | 1,740 | 1,734 | 1,821 | 1,779 | 1,216 | 1,800 | 1,535 | 2,001 |
| Pacific | 28,550 | 36,193 | 37,836 | 92,355 | 100,787 | 101,569 | 112,812 | 127,762 |
| Alaska | 3,143 | 2,819 | 2,878 | 2,936 | 3,024 | 2,672 | 3,039 | 4,100 |
| California | 11,678 | 18,866 | 18,174 | 63,174 | 72,260 | 73,973 | 82,732 | 91,001 |
| Hawaii | 723 | 380 | 250 | 508 | 261 | 378 | 799 | 1,585 |
| Oregon | 5,313 | 5,746 | 6,182 | 6,983 | 4,059 | 4,631 | 4,849 | 6,338 |
| Washington | 7,693 | 8,382 | 10,352 | 18,754 | 21,183 | 19,915 | 21,393 | 24,738 |
| Outlying Areas | 2 | 5 | 13 | 55 | 0 | 187 | 222 | 316 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-27. Institutionally financed R&D expenditures at doctorate-granting institutions,
by geographic division and State: fiscal years 1983-1990

(Dollars in thousands)

| Division and State | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 1,286,310 | 1,396,699 | 1,605,039 | 1,854,909 | 2,157,689 | 2,340,821 | 2,680,475 | 2,982,116 |
| New England | 58,336 | 70,314 | 78,800 | 96,768 | 100,028 | 111,972 | 148,711 | 157,522 |
| Connecticut | 20,814 | 26,571 | 28,271 | 41,445 | 39,761 | 43,689 | 56,999 | 64,344 |
| Maine | 5,590 | 4,284 | 4,756 | 5,075 | 5,740 | 6,214 | 6,567 | 8,253 |
| Massachusetts | 23,991 | 29,717 | 30,637 | 35,644 | 37,790 | 40,865 | 58,681 | 53,644 |
| New Hampshire | 4,281 | 4,651 | 6,399 | 6,027 | 8,114 | 9,556 | 9,333 | 11,500 |
| Rhode Island | 1,444 | 2,226 | 5,261 | 5,202 | 5,293 | 7,294 | 11,646 | 13,237 |
| Vermont | 2,216 | 2,865 | 3,476 | 3,375 | 3,330 | 4,354 | 5,485 | 6,544 |
| Middle Atlantic | 171,873 | 162,615 | 199,592 | 236,009 | 269,188 | 311,259 | 364,426 | 400,094 |
| New Jersey | 31,644 | 30,370 | 32,665 | 47,636 | 55,142 | 68,835 | 82,798 | 96,322 |
| New York | 91,519 | 85,344 | 113,442 | 110,287 | 128,647 | 150,976 | 172,130 | 177,798 |
| Pennsylvania | 48,710 | 46,901 | 53,485 | 78,086 | 85,399 | 91,448 | 109,498 | 125,974 |
| East North Central | 186,581 | 231,545 | 260,510 | 290,267 | 348,441 | 374,596 | 415,689 | 453,549 |
| Illinois | 55,788 | 81,356 | 90,090 | 100,387 | 117,826 | 134,015 | 150,694 | 164,202 |
| Indiana | 20,682 | 28,533 | 28,640 | 31,130 | 37,627 | 39,938 | 43,658 | 52,059 |
| Michigan | 57,658 | 63,030 | 67,925 | 81,518 | 103,782 | 104,181 | 115,965 | 128,244 |
| Ohio | 29,191 | 32,144 | 42,596 | 43,712 | 47,186 | 54,761 | 62,068 | 61,520 |
| Wisconsin | 23,262 | 25,582 | 31,259 | 33,520 | 42,017 | 41,701 | 43,304 | 47,524 |
| West North Central | 145,469 | 138,107 | 152,914 | 175,787 | 184,268 | 201,686 | 220,186 | 246,810 |
| Iowa | 31,141 | 29,680 | 42,729 | 47,613 | 49,668 | 55,980 | 60,796 | 67,301 |
| Kansas | 14,922 | 18,277 | 21,482 | 27,639 | 27,607 | 27,567 | 30,204 | 33,491 |
| Minnesota | 36,453 | 38,235 | 38,231 | 37,251 | 39,371 | 37,261 | 43,713 | 53,399 |
| Missouri | 27,163 | 31,683 | 31,824 | 41,496 | 49,579 | 57,777 | 59,615 | 59,494 |
| Nebraska | 28,863 | 14,594 | 15,848 | 18,742 | 14,913 | 18,757 | 20,905 | 28,134 |
| North Dakota | 2,496 | 2,274 | 2,573 | 2,305 | 2,391 | 3,705 | 4,113 | 4,019 |
| South Dakota | 4,431 | 3,364 | 2,227 | 741 | 739 | 639 | 840 | 972 |
| South Atlantic | 197,854 | 220,086 | 250,967 | 300,454 | 378,249 | 404,246 | 492,946 | 547,989 |
| Delaware | 4,502 | 6,386 | 8,296 | 9,349 | 10,117 | 9,894 | 11,125 | 11,751 |
| District of Columbia | 5,719 | 5,560 | 5,648 | 10,761 | 11,642 | 11,614 | 13,022 | 10,539 |
| Florida | 49,082 | 59,751 | 65,626 | 68,512 | 98,188 | 93,228 | 112,906 | 122,097 |
| Georgia | 65,339 | 54,413 | 60,424 | 81,350 | 95,125 | 107,182 | 125,003 | 142,197 |
| Maryland | 29,854 | 31,015 | 36,001 | 42,215 | 59,733 | 73,156 | 91,738 | 108,922 |
| North Carolina | 9,669 | 21,059 | 21,246 | 22,151 | 25,757 | 31,865 | 41,222 | 40,761 |
| South Carolina | 14,295 | 18,992 | 20,750 | 30,488 | 37,110 | 33,793 | 44,864 | 50,859 |
| Virginia | 12,243 | 16,423 | 25,947 | 27,855 | 29,841 | 32,301 | 37,985 | 46,627 |
| West Virginia | 7,151 | 6,487 | 7,029 | 7,773 | 10,736 | 11,213 | 15,081 | 14,236 |
| East South Central | 63,292 | 51,570 | 65,819 | 80,248 | 97,939 | 110,676 | 121,210 | 132,614 |
| Alabama | 5,996 | 9,030 | 12,407 | 22,205 | 29,919 | 33,029 | 43,635 | 50,803 |
| Kentucky | 14,333 | 15,729 | 17,645 | 22,277 | 26,545 | 35,099 | 30,593 | 33,258 |
| Mississippi | 27,524 | 10,281 | 12,127 | 10,937 | 8,897 | 8,680 | 9,659 | 9,458 |
| Tennessee | 15,439 | 16,530 | 23,640 | 24,829 | 32,578 | 33,868 | 37,323 | 39,095 |
| West South Central | 195,988 | 210,529 | 226,529 | 245,167 | 276,433 | 282,016 | 326,407 | 390,884 |
| Arkansas | 6,168 | 6,233 | 5,675 | 7,875 | 8,028 | 7,286 | 9,521 | 12,451 |
| Louisiana | 22,788 | 25,486 | 37,041 | 38,096 | 42,639 | 45,611 | 47,129 | 55,010 |
| Oklahoma | 52,076 | 53,679 | 51,537 | 51,149 | 57,472 | 62,105 | 60,063 | 70,398 |
| Texas | 114,956 | 125,131 | 132,276 | 148,047 | 168,294 | 167,014 | 209,694 | 253,025 |
| Mountain | 69,164 | 90,564 | 100,528 | 120,831 | 135,731 | 157,007 | 182,410 | 203,386 |
| Arizona | 19,997 | 39,619 | 45,202 | 53,798 | 61,644 | 71,898 | 85,773 | 97,013 |
| Colorado | 14,208 | 18,917 | 18,657 | 21,968 | 17,682 | 17,916 | 17,735 | 22,465 |
| Idaho | 1,191 | 1,236 | 1,392 | 5,331 | 4,436 | 5,432 | 8,148 | 9,596 |
| Montana | 7,003 | 6,117 | 6,372 | 6,920 | 7,604 | 8,442 | 9,534 | 10,147 |
| Nevada | 4,694 | 2,432 | 4,375 | 6,106 | 7,824 | 7,824 | 9,312 | 9,201 |
| New Mexico | 4,339 | 4,591 | 6,404 | 6,711 | 14,187 | 16,183 | 17,860 | 19,399 |
| Utah | 11,494 | 12,150 | 12,423 | 13,750 | 16,178 | 23,208 | 27,822 | 29,237 |
| Wyoming | 6,238 | 5,502 | 5,703 | 6,247 | 6,176 | 6,104 | 6,226 | 6,328 |
| Pacific | 192,808 | 215,902 | 263,390 | 302,869 | 359,785 | 379,498 | 399,893 | 439,260 |
| Alaska | 15,060 | 16,626 | 16,973 | 17,318 | 17,960 | 19,229 | 21,869 | 23,636 |
| California | 167,936 | 187,127 | 216,124 | 241,302 | 289,604 | 312,118 | 321,575 | 355,615 |
| Hawaii | 1,159 | 1,444 | 1,695 | 2,064 | 2,591 | 2,975 | 3,686 | 3,568 |
| Oregon | 7,401 | 7,745 | 8,531 | 10,010 | 16,007 | 17,225 | 16,637 | 19,013 |
| Washington | 1,252 | 2,960 | 20,067 | 32,175 | 33,623 | 27,951 | 36,126 | 37,428 |
| Outlying Areas | 4,945 | 5,467 | 5,990 | 6,509 | 7,627 | 7,865 | 8,597 | 10,008 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering
Expenditures at Universities and Colleges

Table B-28. All other sources of financed R&D expenditures at doctorate-granting institutions, by geographic division and State: fiscal years 1983-1990

(Dollars in thousands)

| Division and State | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|----------------------------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Total | 569,953 | 606,552 | 686,573 | 725,337 | 821,143 | 930,181 | 1,064,834 | 1,207,968 |
| New England | 65,485 | 66,153 | 83,393 | 87,208 | 92,869 | 108,877 | 123,758 | 131,881 |
| Connecticut | 12,421 | 7,872 | 17,000 | 15,534 | 23,519 | 23,370 | 23,139 | 24,680 |
| Maine | 687 | 472 | 2,407 | 2,004 | 1,059 | 713 | 533 | 735 |
| Massachusetts | 48,016 | 53,620 | 56,492 | 61,922 | 61,596 | 78,616 | 89,795 | 95,854 |
| New Hampshire | 3,212 | 1,882 | 2,602 | 3,412 | 4,055 | 4,092 | 5,426 | 5,941 |
| Rhode Island | 400 | 1,500 | 3,906 | 3,120 | 1,394 | 601 | 2,128 | 2,470 |
| Vermont | 749 | 807 | 986 | 1,216 | 1,246 | 1,485 | 2,757 | 2,201 |
| Middle Atlantic | 120,042 | 136,764 | 146,857 | 165,957 | 177,145 | 207,668 | 232,472 | 244,508 |
| New Jersey | 8,254 | 9,506 | 10,763 | 12,814 | 14,991 | 17,656 | 20,284 | 24,591 |
| New York | 80,679 | 93,758 | 95,194 | 106,893 | 111,335 | 137,553 | 153,541 | 161,684 |
| Pennsylvania | 31,109 | 33,500 | 40,900 | 46,250 | 50,819 | 52,459 | 58,647 | 58,233 |
| East North Central | 78,334 | 80,647 | 86,484 | 105,405 | 122,759 | 134,161 | 147,516 | 188,708 |
| Illinois | 20,145 | 20,177 | 22,656 | 30,999 | 32,065 | 37,974 | 40,911 | 49,185 |
| Indiana | 5,765 | 5,475 | 6,300 | 5,820 | 6,071 | 8,041 | 10,238 | 16,070 |
| Michigan | 18,264 | 17,046 | 14,826 | 24,272 | 29,473 | 31,939 | 35,259 | 41,307 |
| Ohio | 20,927 | 23,497 | 25,442 | 26,727 | 31,237 | 35,135 | 37,055 | 51,398 |
| Wisconsin | 13,233 | 14,452 | 17,260 | 17,587 | 23,913 | 21,072 | 24,053 | 30,748 |
| West North Central | 35,044 | 38,238 | 43,855 | 50,602 | 53,677 | 57,548 | 58,126 | 71,669 |
| Iowa | 4,954 | 5,395 | 7,315 | 10,363 | 8,091 | 7,663 | 5,621 | 9,724 |
| Kansas | 3,260 | 3,644 | 4,051 | 3,869 | 3,474 | 2,946 | 4,014 | 4,546 |
| Minnesota | 13,813 | 16,323 | 19,741 | 21,208 | 25,664 | 29,098 | 27,090 | 29,314 |
| Missouri | 9,110 | 10,568 | 10,272 | 11,759 | 11,794 | 13,275 | 16,057 | 22,690 |
| Nebraska | 3,089 | 1,641 | 1,786 | 2,444 | 3,561 | 3,340 | 4,119 | 3,832 |
| North Dakota | 183 | 316 | 317 | 480 | 827 | 999 | 1,003 | 1,226 |
| South Dakota | 635 | 351 | 373 | 479 | 266 | 227 | 222 | 537 |
| South Atlantic | 44,342 | 47,259 | 59,872 | 62,113 | 76,287 | 82,347 | 109,449 | 130,159 |
| Delaware | 1,083 | 1,046 | 1,107 | 1,675 | 2,248 | 2,407 | 2,310 | 3,244 |
| District of Columbia | 6,209 | 5,542 | 4,797 | 4,629 | 6,184 | 5,619 | 5,625 | 6,833 |
| Florida | 10,826 | 13,511 | 11,048 | 13,003 | 16,962 | 17,176 | 25,593 | 26,339 |
| Georgia | 3,512 | 3,434 | 3,507 | 8,027 | 10,052 | 9,524 | 12,135 | 10,743 |
| Maryland | 7,046 | 5,056 | 15,005 | 10,013 | 11,709 | 19,349 | 25,318 | 30,733 |
| North Carolina | 5,816 | 9,075 | 11,278 | 11,987 | 14,163 | 11,263 | 14,096 | 16,009 |
| South Carolina | 2,405 | 2,275 | 2,719 | 3,646 | 4,106 | 4,321 | 8,319 | 10,377 |
| Virginia | 6,558 | 6,512 | 9,329 | 7,837 | 9,661 | 11,266 | 14,323 | 24,124 |
| West Virginia | 887 | 808 | 1,082 | 1,296 | 1,202 | 1,422 | 1,730 | 1,757 |
| East South Central | 14,408 | 19,360 | 16,696 | 18,457 | 26,194 | 31,787 | 41,050 | 45,127 |
| Alabama | 6,479 | 9,671 | 6,796 | 7,877 | 10,259 | 9,555 | 16,456 | 19,691 |
| Kentucky | 601 | 713 | 858 | 1,551 | 3,129 | 5,927 | 5,813 | 4,566 |
| Mississippi | 2,305 | 2,692 | 2,021 | 2,038 | 5,396 | 5,709 | 5,573 | 6,312 |
| Tennessee | 5,023 | 6,284 | 7,021 | 6,991 | 7,410 | 10,596 | 11,208 | 14,358 |
| West South Central | 69,366 | 75,191 | 83,619 | 96,242 | 119,585 | 137,411 | 156,022 | 167,682 |
| Arkansas | 1,802 | 2,186 | 2,666 | 2,661 | 3,063 | 3,064 | 3,633 | 3,035 |
| Louisiana | 7,835 | 6,546 | 9,120 | 10,136 | 12,553 | 12,405 | 14,733 | 15,418 |
| Oklahoma | 1,523 | 2,339 | 5,121 | 3,835 | 5,470 | 7,910 | 9,420 | 8,695 |
| Texas | 58,206 | 64,120 | 66,712 | 79,610 | 98,499 | 114,032 | 128,236 | 140,534 |
| Mountain | 30,912 | 23,531 | 23,525 | 29,616 | 35,858 | 43,020 | 46,304 | 54,796 |
| Arizona | 5,343 | 6,189 | 6,514 | 7,830 | 12,243 | 11,968 | 11,942 | 15,531 |
| Colorado | 9,652 | 9,091 | 9,355 | 12,549 | 14,515 | 15,902 | 16,717 | 19,886 |
| Idaho | 692 | 726 | 795 | 96 | 142 | 0 | 147 | 251 |
| Montana | 0 | 0 | 0 | 0 | 0 | 214 | 203 | 162 |
| Nevada | 3,949 | 1,337 | 692 | 974 | 661 | 880 | 1,315 | 1,437 |
| New Mexico | 6,769 | 1,764 | 2,840 | 3,423 | 4,004 | 9,320 | 10,507 | 10,496 |
| Utah | 4,497 | 3,950 | 3,087 | 4,592 | 4,199 | 4,510 | 5,267 | 6,794 |
| Wyoming | 10 | 474 | 242 | 152 | 94 | 226 | 206 | 239 |
| Pacific | 111,965 | 119,342 | 142,208 | 109,597 | 116,669 | 127,250 | 148,195 | 171,484 |
| Alaska | 1,224 | 1,886 | 1,925 | 1,965 | 1,926 | 2,667 | 3,033 | 3,734 |
| California | 83,336 | 91,769 | 104,600 | 77,055 | 90,254 | 99,520 | 116,454 | 140,073 |
| Hawaii | 445 | 811 | 898 | 718 | 704 | 896 | 915 | 1,220 |
| Oregon | 10,570 | 8,493 | 14,248 | 15,419 | 14,683 | 16,928 | 19,640 | 16,165 |
| Washington | 16,390 | 16,383 | 20,537 | 14,440 | 9,102 | 7,239 | 8,153 | 10,292 |
| Outlying Areas | 55 | 67 | 64 | 140 | 100 | 112 | 1,942 | 1,954 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

(Dollars in thousands)

Page 1 of 10

| State, control, and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|------------------------------------|------------|-----------------------|-----------------------------------|-----------|-----------------------------|----------------------|
| United States, total | 16,057,003 | 9,453,757 | 1,298,659 | 1,114,503 | 2,982,116 | 1,207,968 |
| Public, total | 10,587,079 | 5,486,278 | 1,167,064 | 722,198 | 2,490,560 | 720,979 |
| Private, total | 5,469,924 | 3,967,479 | 1,131,595 | 392,305 | 491,556 | 486,989 |
| Alabama, total | 239,556 | 124,648 | 25,752 | 18,662 | 50,803 | 19,691 |
| Public, total | 239,556 | 124,648 | 25,752 | 18,662 | 50,803 | 19,691 |
| Auburn University | 66,795 | 14,629 | 21,911 | 5,541 | 19,557 | 5,157 |
| The University of Alabama | 21,488 | 6,941 | 274 | 1,798 | 11,969 | 506 |
| Univ Alabama Birmingham | 110,603 | 74,486 | 2,199 | 7,241 | 12,649 | 14,028 |
| Univ Alabama Huntsville | 29,565 | 21,355 | 972 | 5,529 | 4,709 | 0 |
| Univ of South Alabama | 11,105 | 7,237 | 396 | 1,553 | 1,919 | 0 |
| Alaska, total | 65,571 | 31,896 | 2,205 | 4,100 | 23,636 | 3,734 |
| Public, total | 65,571 | 31,896 | 2,205 | 4,100 | 23,636 | 3,734 |
| Univ of Alaska Fairbanks | 65,571 | 31,896 | 2,205 | 4,100 | 23,636 | 3,734 |
| Arizona, total | 260,187 | 122,259 | 7,318 | 18,066 | 97,013 | 15,531 |
| Public, total | 260,187 | 122,259 | 7,318 | 18,066 | 97,013 | 15,531 |
| Arizona State University | 58,652 | 26,590 | 1,045 | 7,354 | 22,115 | 1,548 |
| Northern Arizona Univ | 5,902 | 2,749 | 162 | 466 | 2,525 | 0 |
| University of Arizona | 195,633 | 92,920 | 6,111 | 10,246 | 72,373 | 13,983 |
| Arkansas, total | 48,861 | 17,485 | 11,826 | 4,064 | 12,451 | 3,035 |
| Public, total | 48,861 | 17,485 | 11,826 | 4,064 | 12,451 | 3,035 |
| U of Arkansas Med Sci Cam | 11,898 | 6,654 | 140 | 1,117 | 2,144 | 1,843 |
| Univ of Ark Fayetteville | 36,963 | 10,831 | 11,686 | 2,947 | 10,307 | 1,192 |
| California, total | 2,007,361 | 1,369,315 | 51,357 | 91,001 | 355,615 | 140,073 |
| Public, total | 1,410,219 | 893,401 | 47,945 | 50,566 | 305,311 | 112,996 |
| San Diego State Univ | 22,524 | 14,647 | 1,536 | 1,994 | 3,706 | 641 |
| U of California System | 0 | 0 | 0 | 0 | 0 | 0 |
| US Naval Postgrad School | 17,391 | 17,333 | 0 | 0 | 0 | 58 |
| Univ of Cal Berkeley | 231,061 | 131,717 | 9,032 | 10,892 | 66,764 | 12,656 |
| Univ of Cal Davis | 198,075 | 77,424 | 12,144 | 7,461 | 88,421 | 12,625 |
| Univ of Cal Irvine | 78,074 | 52,492 | 2,268 | 3,115 | 11,419 | 8,780 |
| Univ of Cal Los Angeles | 246,795 | 164,442 | 3,701 | 8,310 | 38,052 | 32,290 |
| Univ of Cal Riverside | 54,892 | 15,806 | 2,374 | 903 | 32,636 | 3,173 |
| Univ of Cal San Diego | 237,032 | 182,555 | 4,922 | 9,135 | 23,145 | 17,275 |
| Univ of Cal San Francisco | 238,278 | 175,257 | 9,971 | 5,276 | 26,475 | 21,299 |
| Univ of Cal Santa Barbara | 59,750 | 47,873 | 1,169 | 2,655 | 5,617 | 2,436 |
| Univ of Cal Santa Cruz | 26,347 | 13,855 | 828 | 825 | 9,076 | 1,763 |
| Private, total | 597,142 | 475,914 | 3,412 | 40,435 | 50,304 | 27,077 |
| Biola University | 0 | 0 | 0 | 0 | 0 | 0 |
| Cal Sch Prof Psych-Berkly | 0 | 0 | 0 | 0 | 0 | 0 |
| Cal Sch Prof Psych-Fresno | 1,382 | 985 | 0 | 0 | 397E | 0 |
| Cal Sch Prof Psych-L A | 1,316 | 1,163 | 0 | 0 | 153 | 0 |
| Cal Sch Prof Psych-S D | 661 | 01 | 01 | 01 | 661 | 01 |
| California Inst of Tech | 105,730 | 90,577 | 510 | 2,268 | 7,492 | 4,883 |
| Chas R Drew U of Med & Sc | 3,0981 | 3,0981 | 01 | 01 | 01 | 01 |
| Claremont Univ Ctr & Grad | 583 | 47 | 64 | 149 | 110 | 213 |
| Col Osteo Med of Pacific | 9 | 0 | 0 | 0 | 9 | 0 |
| Fielding Institute | 0 | 0 | 0 | 0 | 0 | 0 |
| Fuller Theological Sem | 50 | 0 | 0 | 0 | 50 | 0 |
| Loma Linda University | 7,547 | 3,349 | 0 | 3,266 | 742 | 190 |
| Rand Grad Inst Pol Studies | 0 | 0 | 0 | 0 | 0 | 0 |
| Santa Clara University | 1,569 | 550 | 0 | 82 | 835 | 102 |
| Stanford University | 305,7001 | 251,4461 | 4491 | 15,7741 | 16,3421 | 21,6891 |
| The Wright Institute | 0 | 0 | 0 | 0 | 0 | 0 |
| US International Univ | 93 | 88 | 0 | 0 | 5 | 0 |
| Univ of Southern Cal | 169,102 | 123,714 | 2,389 | 18,896 | 24,103 | 0 |
| University of the Pacific | 897 | 897 | 0 | 0 | 0 | 0 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

(Dollars in thousands)

Page 2 of 10

| State, control, and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|------------------------------------|---------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| Colorado, total | 249,958 | 179,978 | 11,637 | 15,992 | 22,465 | 19,886 |
| Public, total | 239,856 | 172,502 | 11,437 | 14,369 | 21,662 | 19,886 |
| Colorado School of Mines | 10,943 | 5,310 | 1,217 | 4,060 | 356 | 0 |
| Colorado State University | 73,967 | 50,744 | 8,684 | 2,883 | 6,988 | 4,668 |
| Univ of Northern Colorado | 223 | 54 | 4 | 0 | 90 | 75 |
| Univ. of Colorado | 154,723 | 116,394 | 1,532 | 7,426 | 14,228 | 15,143 |
| Private, total | 10,102 | 7,476 | 200 | 1,623 | 803 | 0 |
| University of Denver | 10,102 | 7,476 | 200 | 1,623 | 803 | 0 |
| Connecticut, total | 298,076 | 190,388 | 5,262 | 13,402 | 64,344 | 24,680 |
| Public, total | 113,349 | 43,477 | 4,010 | 6,388 | 51,409 | 8,065 |
| University of Connecticut | 113,349 | 43,477 | 4,010 | 6,388 | 51,409 | 8,065 |
| Private, total | 184,727 | 146,911 | 1,252 | 7,014 | 12,935 | 16,615 |
| Wesleyan University | 4,021 | 1,949 | 318 | 0 | 1,471 | 283 |
| Yale University | 180,706 | 144,962 | 934 | 7,014 | 11,464 | 16,332 |
| Delaware, total | 40,119 | 17,588 | 3,139 | 4,397 | 11,751 | 3,244 |
| Public, total | 40,119 | 17,588 | 3,139 | 4,397 | 11,751 | 3,244 |
| University of Delaware | 40,119 | 17,588 | 3,139 | 4,397 | 11,751 | 3,244 |
| District of Columbia, total | 112,146 | 86,292 | 465 | 8,017 | 10,539 | 6,833 |
| Private, total | 112,146 | 86,292 | 465 | 8,017 | 10,539 | 6,833 |
| American University | 4,127 | 3,532 | 28 | 183 | 318 | 66 |
| Catholic Univ of America | 7,398 | 6,783 | 0 | 615 | 0 | 0 |
| George Washington Univ | 32,372 | 26,817 | 165 | 988 | 1,490 | 2,912 |
| Georgetown University | 50,867 | 36,093 | 155 | 3,362 | 7,418 | 3,839 |
| Howard University | 17,382 | 13,067 | 117 | 2,869 | 1,313E | 16 |
| Florida, total | 433,413 | 223,232 | 33,305 | 28,440 | 122,097 | 26,339 |
| Public, total | 330,465 | 152,496 | 27,984 | 21,753 | 116,299 | 11,933 |
| Florida A & M University | 15,847 | 13,110 | 2,592 | 145 | 0 | 0 |
| Florida Atlantic Univ | 4,985 | 2,010 | 1,671 | 639 | 665 | 0 |
| Florida State University | 62,933 | 32,927 | 2,396 | 669 | 24,940 | 2,001 |
| Univ of Central Florida | 30,618 | 9,354 | 5,485 | 3,813 | 11,966 | 0 |
| Univ of South Florida | 76,404 | 30,481 | 4,153 | 4,250 | 35,356 | 2,164 |
| University of Florida | 139,678 | 64,614 | 11,687 | 12,237 | 43,372 | 7,768 |
| Private, total | 102,948 | 70,736 | 5,321 | 6,687 | 5,798 | 14,406 |
| Florida Inst of Tech | 7,003 | 1,251 | 3,067 | 1,205 | 1,243 | 237 |
| Nova University | 1,601 | 1,341 | 144 | 116 | 0 | 0 |
| University of Miami | 94,344 | 68,144 | 2,110 | 5,366 | 4,555 | 14,169 |
| Georgia, total | 445,011 | 212,443 | 42,638 | 36,990 | 142,197 | 10,743 |
| Public, total | 345,929 | 150,372 | 39,249 | 29,243 | 123,960 | 3,105 |
| Georgia Institute of Tech | 168,193 | 94,842 | 1,229 | 21,256 | 50,866 | 0 |
| Georgia State University | 8,942 | 3,621 | 455 | 270 | 3,718 | 878 |
| Medical Col of Georgia | 12,052 | 8,045 | 207 | 1,920 | 841 | 1,039 |
| University of Georgia | 156,742 | 43,864 | 37,358 | 5,797 | 68,535 | 1,188 |
| Private, total | 99,082 | 62,071 | 3,389 | 7,747 | 18,237 | 7,638 |
| Clark Atlanta University | 01 | 01 | 01 | 01 | 01 | 01 |
| Emory University | 82,774 | 52,367 | 3,324 | 7,170 | 13,463 | 6,450 |
| Inst Paper Sci and Tech | 5,761 | 965 | 0 | 172 | 3,936 | 688 |
| Mercer University | 4,656 | 3,590 | 65 | 355 | 646 | 0 |
| Morehouse School of Med | 5,891 | 5,149 | 0 | 50 | 192 | 500 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

54

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

Page 3 of 10

| State, control and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|-----------------------------------|---------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| Hawaii, total | 76,525 | 42,665 | 27,487 | 1,585 | 3,568 | 1,220 |
| Public, total | 76,525 | 42,665 | 27,487 | 1,585 | 3,568 | 1,220 |
| Univ of Hawaii-Manoa | 76,525 | 42,665 | 27,487 | 1,585 | 3,568 | 1,220 |
| Idaho, total | 36,570 | 14,361 | 8,156 | 4,206 | 9,596 | 251 |
| Public, total | 36,570 | 14,361 | 8,156 | 4,206 | 9,596 | 251 |
| Idaho State University | 1,634 | 549 | 325 | 475 | 83 | 202 |
| University of Idaho | 34,936 | 13,812 | 7,831 | 3,731 | 9,513 | 49 |
| Illinois, total | 647,863 | 352,417 | 37,911 | 44,148 | 164,202 | 49,185 |
| Public, total | 350,764 | 173,617 | 35,143 | 30,154 | 93,169 | 18,681 |
| Illinois State University | 2,951 | 1,193 | 1,085 | 0 | 45 | 628 |
| Northern Illinois Univ | 8,930 | 3,251 | 422 | 2,351 | 2,906 | 0 |
| Southern Ill U-Carbondale | 25,873 | 8,035 | 3,346 | 1,884 | 10,841 | 1,767 |
| Univ of Ill Chicago | 85,268 | 43,968 | 1,708 | 5,157 | 25,786 | 8,649 |
| Univ of Ill Urbana | 227,742 | 117,170 | 28,582 | 20,762 | 53,591 | 7,637 |
| Private, total | 297,099 | 178,800 | 2,768 | 13,994 | 71,033 | 30,504 |
| Chicago Col of Osteo Med | 1,161 | 318 | 0 | 348 | 495 | 0 |
| De Paul University | 972 | 623 | 15 | 13 | 230 | 91 |
| Illinois Inst of Tech | 6,793 | 3,887 | 174 | 1,819 | 913 | 0 |
| Loyola Univ - Chicago | 12,260 | 6,203 | 221 | 1,398 | 2,314 | 2,124 |
| Northwestern University | 131,979 | 61,812 | 1,081 | 5,325 | 49,949 | 13,812 |
| Rush University | 21,284 | 6,083 | 1,083 | 3,622 | 6,438 | 4,058 |
| U Hlth Sci/Chcgo Med Sch | 4,695 | 3,547 | 0 | 267 | 484 | 397 |
| University of Chicago | 117,955 | 96,327 | 194 | 1,202 | 10,210 | 10,022 |
| Indiana, total | 240,696 | 134,953 | 19,449 | 18,165 | 52,059 | 16,070 |
| Public, total | 221,323 | 122,086 | 19,237 | 14,200 | 49,730 | 16,070 |
| Ball State University | 850 | 153 | 117 | 228 | 352 | 0 |
| Indiana State University | 503 | 314 | 17 | 24 | 527 | 21 |
| Indiana University | 89,191 | 57,155 | 798 | 2,316 | 19,346 | 9,576 |
| Purdue University | 130,379 | 64,464 | 18,305 | 11,632 | 29,505 | 6,473 |
| Private, total | 19,373 | 12,867 | 212 | 3,965 | 2,329 | 0 |
| University of Notre Dame | 19,373 | 12,867 | 212 | 3,965 | 2,329 | 0 |
| Iowa, total | 232,147 | 113,268 | 29,500 | 12,354 | 67,301 | 9,724 |
| Public, total | 232,080 | 113,225 | 29,500 | 12,354 | 67,294 | 9,707 |
| Iowa St U of Sci & Tech | 115,945 | 34,043 | 26,833 | 5,525 | 44,639 | 4,905 |
| Univ of Northern Iowa | 357 | 136 | 132 | 2 | 86 | 1 |
| University of Iowa | 115,778 | 79,046 | 2,535 | 6,827 | 22,569 | 4,801 |
| Private, total | 67 | 43 | 0 | 0 | 7 | 17 |
| Univ Osteo Med & Hlth Sci | 67 | 43 | 0 | 0 | 7 | 17 |
| Kansas, total | 114,651 | 43,478 | 25,523 | 7,613 | 33,491 | 4,546 |
| Public, total | 114,651 | 43,478 | 25,523 | 7,613 | 33,491 | 4,546 |
| Kans St U - Ag & App Sci | 50,311 | 15,651 | 22,757 | 2,483 | 7,357 | 2,063 |
| University of Kansas | 61,144 | 26,786 | 2,240 | 4,473 | 25,901 | 1,744 |
| Wichita State University | 3,196 | 1,041 | 526 | 657 | 233 | 739 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

(Dollars in thousands)

Page 4 of 10

| State, control and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|-----------------------------------|---------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| Kentucky, total | 90,880 | 38,249 | 6,684 | 8,123 | 33,250 | 4,566 |
| Public, total | 90,880 | 38,249 | 6,684 | 8,123 | 33,258 | 4,566 |
| University of Kentucky | 76,959 | 29,612 | 6,594 | 6,720 | 27,467 | 4,566 |
| University of Louisville | 15,921 | 8,637 | 90 | 1,403 | 5,791 | 0 |
| Louisiana, total | 207,038 | 82,769 | 43,673 | 10,168 | 55,010 | 15,418 |
| Public, total | 148,729 | 52,536 | 41,808 | 4,216 | 39,225 | 10,944 |
| Louisiana State Univ | 135,849 | 48,802 | 39,536 | 3,759 | 33,636 | 10,116 |
| Louisiana Tech University | 3,894 | 2,629 | 355 | 450 | 460 | 0 |
| Northeast Louisiana Univ | 667 | 231 | 429 | 7 | 0 | 0 |
| Univ of Southwestern LA | 8,319 | 874 | 1,488 | 0 | 5,129 | 828 |
| Private, total | 58,309 | 30,233 | 1,865 | 5,952 | 15,785 | 4,474 |
| Tulane University | 56,407 | 28,331 | 1,865 | 5,952 | 15,785 | 4,474 |
| Xavier University of LA | 1,902 | 1,902 | 0 | 0 | 0 | 0 |
| Maine, total | 23,605 | 9,046 | 908 | 4,663 | 8,253 | 735 |
| Public, total | 23,605 | 9,046 | 908 | 4,663 | 8,253 | 735 |
| Univ of Maine Orono | 23,605 | 9,046 | 908 | 4,663 | 8,253 | 735 |
| Maryland, total | 977,593 | 724,468 | 71,426 | 42,044 | 108,922 | 30,733 |
| Public, total | 308,678 | 124,617 | 68,292 | 27,083 | 80,246 | 8,440 |
| U of MD Baltimore County | 5,385 | 4,147 | 0 | 0 | 46 | 1,192 |
| U of MD Center For EES | 15,652 | 2,379 | 3,153 | 63 | 8,979 | 1,078 |
| U of MD Eastern Shore | 1,850 | 1,552 | 298 | 0 | 0 | 0 |
| Unif Serv Univ of Hlth Sc | 36,080 | 11,288 | 0 | 0 | 24,792 | 0 |
| Univ of MD Balt Prof Sch | 83,689 | 38,841 | 16,815 | 12,791 | 9,072 | 6,170 |
| Univ of MD College Park | 166,022 | 66,410 | 48,026 | 14,229 | 37,357 | 0 |
| Private, total | 668,915 | 599,851 | 3,134 | 14,961 | 28,676 | 22,293 |
| Johns Hopkins Univ | 668,915 | 599,851 | 3,134 | 14,961 | 28,676 | 22,293 |
| Massachusetts, total | 898,808 | 649,104 | 14,081 | 86,125 | 53,644 | 95,854 |
| Public, total | 113,103 | 60,680 | 8,633 | 15,570 | 20,687 | 7,533 |
| Univ of Massachusetts | 101,812 | 56,018 | 7,429 | 11,678 | 20,500 | 6,187 |
| University of Lowell | 11,291 | 4,662 | 1,204 | 3,892 | 187 | 1,346 |
| Private, total | 785,705 | 588,424 | 5,448 | 70,555 | 32,957 | 88,321 |
| Boston College | 8,052 | 6,798 | 1 | 210 | 371 | 672 |
| Boston University | 73,655 | 60,459 | 171 | 4,611 | 0 | 8,414 |
| Brandeis University | 30,881 | 18,819 | 467 | 0 | 4,725 | 6,870 |
| Clark University | 1,281 | 919 | 0 | 0 | 0 | 362 |
| Harvard University | 220,812 | 154,090 | 1,146 | 10,565 | 16,766 | 38,245 |
| Mass Col Phar/Allied Hlth | 73 | 0 | 73 | 0 | 0 | 0 |
| Mass Inst of Technology | 311,767 | 233,813 | 2,489 | 43,460 | 7,109 | 24,896 |
| Northeastern University | 14,347 | 10,217 | 359 | 1,711 | 241 | 1,819 |
| Smith College | 1,398 | 298 | 0 | 0 | 361 | 739 |
| Tufts University | 47,009 | 38,290 | 115 | 7,761 | 821 | 22E |
| Woods Hole Oceanographic Inst | 71,747 | 62,356 | 515 | 532 | 2,275 | 6,069 |
| Worcester Poly Institute | 4,683 | 2,365 | 185 | 1,632 | 288 | 213 |
| Michigan, total | 527,070 | 276,078 | 36,747 | 44,694 | 128,244 | 41,307 |
| Public, total | 525,150 | 275,737 | 36,746 | 43,450 | 128,011 | 41,206 |
| Central Michigan Univ | 1,071 | 60 | 534 | 65 | 412 | 0 |
| Michigan State University | 126,987 | 58,221 | 24,069 | 4,557 | 30,735 | 9,405 |
| Michigan Tech University | 16,037 | 6,045 | 3,437 | 3,999 | 2,556 | 0 |
| Oakland University | 4,102 | 1,882 | 0 | 724 | 1,397 | 99 |
| University of Michigan | 310,578 | 180,456 | 2,687 | 27,128 | 74,299 | 26,008 |
| Wayne State University | 62,455 | 28,488 | 5,306 | 5,875 | 17,715 | 5,071 |
| Western Michigan Univ | 3,920 | 585 | 713 | 1,102 | 897 | 623 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

Page 5 of 10

| State, control, and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|------------------------------------|---------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| Michigan, continued | | | | | | |
| Private, total | 1,920 | 341 | 1 | 1,244 | 233 | 101 |
| Andrews University | 394 | 96 | 1 | 0 | 196 | 101 |
| University of Detroit | 1,526 | 245 | 0 | 1,244 | 37 | 0 |
| Minnesota, total | 292,046 | 143,810 | 47,437 | 18,086 | 53,399 | 29,314 |
| Public, total | 292,046 | 143,810 | 47,437 | 18,086 | 53,399 | 29,314 |
| University of Minnesota | 292,046 | 143,810 | 47,437 | 18,086 | 53,399 | 29,314 |
| Private, total | 0 | 0 | 0 | 0 | 0 | 0 |
| Mayo Grad School of Med | 0 | 0 | 0 | 0 | 0 | 0 |
| Mississippi, total | 85,229 | 40,343 | 20,745 | 8,171 | 9,458 | 6,512 |
| Public, total | 85,229 | 40,343 | 20,745 | 8,171 | 9,458 | 6,512 |
| Mississippi State Univ | 58,492 | 21,426 | 20,684 | 6,389 | 5,298 | 4,695 |
| Univ of Sthrn Mississippi | 4,666 | 3,944 | 28 | 532 | 148 | 14 |
| University of Mississippi | 22,071 | 14,973 | 33 | 1,250 | 4,012 | 1,803 |
| Missouri, total | 281,133 | 152,398 | 18,469 | 28,082 | 59,494 | 22,690 |
| Public, total | 112,188 | 32,335 | 15,144 | 12,802 | 45,052 | 6,855 |
| Univ of Missouri Columbia | 84,311 | 24,422 | 13,398 | 9,130 | 32,468 | 4,893 |
| Univ of Missouri Kan City | 8,310 | 2,767 | 771 | 1,383 | 3,117 | 272 |
| Univ of Missouri Rolla | 14,285 | 3,863 | 835 | 2,186 | 6,141 | 1,260 |
| Univ of Missouri St Louis | 2,291 | 1,167 | 86 | 69 | 667 | 302 |
| Univ of Missouri Sys Off | 2,991 | 116 | 54 | 34 | 2,659 | 128 |
| Private, total | 168,945 | 120,063 | 3,325 | 15,280 | 14,442 | 15,835 |
| Kirkville Col Osteo Med | 539 | 198 | 0 | 0 | 17 | 324 |
| St Louis University | 17,157 | 14,106 | 216 | 1,148 | 101 | 1,586 |
| Univ of Health Sciences | 0 | 0 | 0 | 0 | 0 | 0 |
| Washington University | 151,249 | 105,759 | 3,109 | 14,132 | 14,324 | 13,925 |
| Montana, total | 34,980 | 12,520 | 7,885 | 4,266 | 10,147 | 162 |
| Public, total | 34,980 | 12,520 | 7,885 | 4,266 | 10,147 | 162 |
| Montana State University | 27,648 | 9,052 | 7,153 | 3,833 | 7,610 | 0 |
| University of Montana | 7,332 | 3,468 | 732 | 433 | 2,537 | 162 |
| Nebraska, total | 105,373 | 34,356 | 27,976 | 11,075 | 28,134 | 3,832 |
| Public, total | 96,444 | 31,951 | 27,751 | 4,991 | 27,919 | 3,832 |
| U of Neb Med Ctr at Omaha | 17,844 | 9,078 | 511 | 1,595 | 4,819 | 1,841 |
| Univ of Nebraska at Omaha | 1,002 | 187 | 116 | 2 | 476 | 221 |
| Univ of Nebraska-Lincoln | 77,598 | 22,686 | 27,124 | 3,394 | 22,624 | 1,770 |
| Private, total | 8,929 | 2,405 | 225 | 6,084 | 215 | 0 |
| Creighton University | 8,929 | 2,405 | 225 | 6,084 | 215 | 0 |
| Nevada, total | 38,301 | 20,689 | 2,418 | 4,556 | 9,201 | 1,437 |
| Public, total | 38,301 | 20,689 | 2,418 | 4,556 | 9,201 | 1,437 |
| Desert Research Institute | 16,852 | 8,767 | 1,716 | 3,329 | 2,844 | 196 |
| Univ of Nevada - Reno | 21,449 | 11,922 | 702 | 1,227 | 6,357 | 1,241 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

Page 6 of 10

| State, control and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|-----------------------------------|-----------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| New Hampshire, total | 69,731 | 44,590 | 3,985 | 3,715 | 11,500 | 5,941 |
| Public, total | 25,994 | 14,455 | 1,291 | 1,464 | 5,922 | 2,862 |
| Univ of New Hampshire | 25,994 | 14,455 | 1,291 | 1,464 | 5,922 | 2,862 |
| Private, total | 43,737 | 30,135 | 2,694 | 2,251 | 5,578 | 3,079 |
| Dartmouth College | 43,737 | 30,135 | 2,694 | 2,251 | 5,578E | 3,079 |
| New Jersey, total | 319,797 | 135,078 | 46,278 | 17,528 | 96,322 | 24,591 |
| Public, total | 217,439 | 76,893 | 43,419 | 11,372 | 70,635 | 15,120 |
| N J Inst of Technology | 15,225 | 2,731 | 8,422 | 1,710 | 586 | 1,776 |
| Rutgers the St Univ of NJ | 137,985 | 40,977 | 26,766 | 6,754 | 55,786 | 7,702 |
| Univ of Med & Dent of N J | 64,229 | 33,185 | 8,231 | 2,908 | 14,263 | 5,642 |
| Private, total | 102,358 | 58,185 | 2,859 | 6,156 | 25,687 | 9,471 |
| Fairleigh Dickinson Univ | 3,183 | 2,364 | 713 | 19 | 14 | 73 |
| Princeton University | 91,514 | 51,559 | 1,164 | 4,964 | 24,479 | 9,348 |
| Seton Hall University | 1,515 | 1,302 | 01 | 213 | 01 | 01 |
| Stevens Institute of Tech | 6,146 | 2,960 | 982 | 960 | 1,194 | 50 |
| New Mexico, total | 151,927 | 85,747 | 14,776 | 21,509 | 19,399 | 10,496 |
| Public, total | 151,927 | 85,747 | 14,776 | 21,509 | 19,399 | 10,496 |
| N Mex Inst Mining & Tech | 22,911 | 5,610 | 1,626 | 10,194 | 4,908 | 573 |
| New Mexico State Univ | 71,288 | 54,688 | 8,250 | 7,293 | 884 | 173 |
| University of New Mexico | 57,728 | 25,449 | 4,900 | 4,022 | 13,607 | 9,750 |
| New York, total | 1,410,700 | 917,748 | 75,518 | 77,952 | 177,798 | 161,684 |
| Public, total | 325,119 | 185,867 | 12,431 | 10,677 | 63,614 | 52,530 |
| CUNY City College | 12,973 | 10,554 | 716 | 442 | 0 | 1,261 |
| CUNY Grad Sch & Univ Ctr | 3,858 | 2,990 | 0 | 0 | 46 | 822 |
| CUNY Hunter College | 6,928 | 4,531 | 0 | 360 | 1,489 | 548 |
| CUNY Col of Env Sci & For | 18,671 | 1,973 | 622 | 1,867 | 13,587 | 622 |
| SUNY Hlth Sci Ctr - Brkln | 22,873 | 14,574 | 2,400 | 1,084 | 1,652 | 3,163 |
| SUNY Hlth Sci Ctr - Syrcs | 35,193 | 9,965 | 393 | 320 | 0 | 24,515 |
| SUNY St Coll of Optometry | 483 | 294 | 0 | 25 | 130 | 34 |
| SUNY at Albany | 22,034 | 14,497 | 157 | 727 | 5,856 | 795 |
| SUNY at Binghamton | 10,680 | 3,702 | 1,234 | 1,308 | 2,995 | 1,441 |
| SUNY at Buffalo | 109,190 | 66,876 | 4,164 | 2,118 | 19,823 | 16,209 |
| SUNY at Stony Brook | 82,236 | 55,911 | 2,745 | 2,426 | 18,034 | 3,120 |
| Private, total | 1,085,581 | 731,881 | 63,087 | 67,275 | 114,184 | 109,154 |
| Adelphi University | 633 | 295 | 216 | 01 | 122 | 01 |
| Albany Med Ctr Grad Sch | 9,431 | 6,073 | 0 | 719 | 1,131 | 1,508 |
| Alfred University | 4,067 | 344 | 1,090 | 1,672 | 917 | 44 |
| CUNY Mt Sinai Sch of Med | 63,752 | 43,607 | 971 | 4,053 | 5,327 | 9,794 |
| Clarkson University | 8,392 | 3,841 | 1,239 | 1,638 | 1,674 | 0 |
| Columbia U Teachers Col | 803 | 181 | 0 | 0 | 0 | 622 |
| Columbia Univ Main Div | 182,769 | 156,270 | 2,635 | 5,618 | 4,352 | 13,894 |
| Cornell University | 300,144 | 171,249 | 42,385 | 16,620 | 49,763 | 20,127 |
| Fordham University | 2,501 | 1,723 | 348 | 0 | 105 | 325 |
| Hofstra University | 515 | 445 | 45 | 25 | 0 | 0 |
| Long Island University | 171 | 57 | 12 | 16 | 49 | 37 |
| New Sch For Soc Research | 1,026 | 293 | 0 | 0 | 0 | 733 |
| New York Inst Technology | 3,087 | 0 | 0 | 475 | 2,612 | 0 |
| New York Medical College | 13,244 | 9,028 | 375 | 1,706 | 0 | 2,135 |
| New York University | 108,511 | 80,756 | 786 | 5,260 | 9,118 | 12,591 |
| Polytechnic University | 10,919 | 7,025 | 1,201 | 2,278 | 265 | 150 |
| Rensselaer Polytech Inst | 47,363 | 22,809 | 3,255 | 11,418 | 4,267 | 5,614 |
| Rockefeller University | 75,245 | 36,788 | 268 | 4,918 | 16,805 | 16,466 |
| St John's University (NY) | 759 | 519 | 26 | 214 | 0 | 0 |
| Syracuse University | 33,811 | 18,924 | 1,626 | 3,851 | 6,273 | 3,137 |
| Union College (NY) | 5,459 | 944 | 444 | 375 | 0 | 3,696 |
| University of Rochester | 129,011 | 105,644 | 6,165 | 6,419 | 1,801 | 8,982 |
| Yeshiva University | 83,968 | 65,066 | 0 | 0 | 9,603 | 9,299 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

Page 7 of 10

| State, control, and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|------------------------------------|---------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| North Carolina, total | 441,860 | 276,795 | 64,923 | 43,372 | 40,761 | 16,009 |
| Public, total | 261,498 | 140,560 | 63,389 | 25,478 | 29,514 | 2,557 |
| East Carolina University | 6,098 | 3,499 | 907 | 1,692 | 0 | 0 |
| N C State Univ at Raleigh | 131,133 | 43,787 | 49,013 | 21,398 | 14,485 | 2,450 |
| Univ of N C at Greensboro | 1,154 | 806 | 4 | 209 | 41 | 94 |
| Univ of NC at Chapel Hill | 123,113 | 92,468 | 13,465 | 2,179 | 14,988 | 13 |
| Private, total | 180,362 | 136,235 | 1,534 | 17,894 | 11,247 | 13,452 |
| Duke University | 140,708 | 106,053 | 1,391 | 12,252 | 9,757 | 11,255 |
| Wake Forest University | 39,654 | 30,182 | 143 | 5,642 | 1,490 | 2,197 |
| North Dakota, total | 29,966 | 20,815 | 1,061 | 2,845 | 4,019 | 1,226 |
| Public, total | 29,966 | 20,815 | 1,061 | 2,845 | 4,019 | 1,226 |
| North Dakota State Univ | 12,468 | 6,417 | 928 | 1,289 | 2,997 | 837 |
| University of N Dakota | 17,498 | 14,398 | 133 | 1,556 | 1,022 | 389 |
| Ohio, total | 457,189 | 260,537 | 46,349 | 37,385 | 61,520 | 51,398 |
| Public, total | 327,628 | 160,978 | 44,252 | 27,641 | 53,650 | 41,107 |
| Air Force Inst of Tech/Nr | 2,200 | 2,200 | 0 | 0 | 0 | 0 |
| Bowling Green State Univ | 3,400 | 1,882 | 235 | 180 | 1,103 | 0 |
| Cleveland State Univ | 8,699 | 3,695 | 2,022 | 206 | 2,667 | 109 |
| Kent State University | 7,172 | 4,656 | 265 | 195 | 1,935 | 121 |
| Med Col of Ohio at Toledo | 7,159 | 5,956 | 336 | 468 | 0 | 399 |
| Miami University (Ohio) | 2,203 | 1,365 | 195 | 643 | 0 | 0 |
| NE Ohio Univ Med School | 1,409 | 708 | 110 | 22 | 398 | 171 |
| Ohio State University | 178,569 | 78,878 | 31,254 | 14,744 | 24,624 | 29,069 |
| Ohio University | 12,982 | 4,140 | 3,816 | 454 | 4,298 | 274 |
| University of Akron | 10,372 | 3,005 | 1,733 | 3,873 | 1,761 | 0 |
| University of Cincinnati | 74,461 | 44,966 | 2,978 | 4,468 | 13,114 | 8,935 |
| University of Toledo | 5,551 | 2,101 | 484 | 1,885 | 736 | 345 |
| Wright State University | 13,451 | 7,426 | 824 | 503 | 3,014 | 1,684 |
| Private, total | 129,561 | 99,559 | 2,097 | 9,744 | 7,870 | 10,291 |
| Antioch University | 0 | 0 | 0 | 0 | 0 | 0 |
| Case Western Reserve Univ | 93,384 | 70,515 | 1,546 | 4,954 | 6,348 | 10,021 |
| Union Institute | 0 | 0 | 0 | 0 | 0 | 0 |
| University of Dayton | 36,177 | 29,044 | 551 | 4,790 | 1,522 | 270 |
| Oklahoma, total | 130,650 | 37,020 | 7,665 | 6,872 | 70,398 | 8,695 |
| Public, total | 126,265 | 35,983 | 7,251 | 4,533 | 69,927 | 8,571 |
| OSU College of Osteo Med | 1,935 | 1,368 | 264 | 8 | 287 | 8 |
| Oklahoma State University | 65,685 | 17,744 | 3,004 | 1,963 | 42,142 | 832 |
| University of Oklahoma | 58,645 | 16,871 | 3,983 | 2,562 | 27,498 | 7,731 |
| Private, total | 4,385 | 1,037 | 414 | 2,339 | 471 | 124 |
| Oral Roberts University | 60 | 0 | 0 | 9 | 51 | 0 |
| University of Tulsa | 4,325 | 1,037 | 414 | 2,330 | 420 | 124 |
| Oregon, total | 171,550 | 107,466 | 22,568 | 6,338 | 19,013 | 16,165 |
| Public, total | 162,288 | 100,629 | 22,516 | 4,747 | 18,248 | 16,148 |
| Oregon Hlth Sciences Univ | 41,420 | 27,241 | 0 | 1,325 | 7,671 | 5,183 |
| Oregon State University | 90,688 | 50,544 | 21,901 | 3,167 | 5,446 | 9,630 |
| Portland State University | 3,834 | 2,693 | 346 | 37 | 509 | 249 |
| University of Oregon | 26,346 | 20,151 | 269 | 218 | 4,622 | 1,086 |
| Private, total | 9,262 | 6,837 | 52 | 1,591 | 765 | 17 |
| Oregon Grad Inst Sci/Tech | 9,262 | 6,837 | 52 | 1,591 | 765 | 17 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

(Dollars in thousands)

Page 8 of 10

| State, control and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|-----------------------------------|-----------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| Pennsylvania, total | 829,518 | 515,094 | 31,152 | 99,065 | 125,974 | 58,233 |
| Public, total | 424,091 | 253,520 | 12,922 | 43,994 | 95,933 | 17,722 |
| Pennsylvania State Univ | 256,926 | 136,656 | 10,915 | 34,806 | 74,476 | 73 |
| Temple University | 49,449 | 26,164 | 778 | 2,707 | 14,241 | 5,559 |
| University of Pittsburgh | 117,716 | 90,700 | 1,229 | 6,481 | 7,216 | 12,090 |
| Private, total | 405,427 | 261,574 | 18,230 | 55,071 | 30,041 | 40,511 |
| Bryn Mawr College | 1,854 | 1,252 | 128 | 0 | 469 | 5 |
| Carnegie-Mellon Univ | 100,201 | 64,550 | 6,350 | 20,295 | 1,881 | 7,125 |
| Drexel University | 20,079 | 6,761 | 1,619 | 3,888 | 7,811 | 0 |
| Duquesne University | 558 | 216 | 0 | 0 | 225 | 117 |
| Hahnemann University | 13,595 | 8,244 | 337 | 232 | 1,593E | 3,189E |
| Lehigh University | 27,255 | 11,242 | 2,797 | 8,030 | 4,580 | 606 |
| Phila Col Osteopathic Med | 340 | 83 | 0 | 0 | 245 | 12 |
| Phila Col of Pharm & Sci | 1,153 | 381 | 0 | 772 | 0 | 0 |
| The Medical Col of Penna | 18,643 | 11,704 | 3,246 | 1,263 | 429 | 2,001 |
| Thomas Jefferson Univ | 30,969 | 22,451 | 0 | 8,518 | 0 | 0 |
| Univ of Pennsylvania | 189,390 | 133,747 | 3,635 | 11,973 | 12,579 | 27,456 |
| Villanova University | 1,390 | 943 | 118 | 100 | 229 | 0 |
| Rhode Island, total | 82,634 | 57,430 | 5,119 | 4,378 | 13,237 | 2,470 |
| Public, total | 35,846 | 20,511 | 4,802 | 1,071 | 9,411 | 51 |
| Univ of Rhode Island | 35,846 | 20,511 | 4,802 | 1,071 | 9,411 | 51 |
| Private, total | 46,788 | 36,919 | 317 | 3,307 | 3,826 | 2,419 |
| Brown University | 46,763 | 36,919 | 317 | 3,307 | 3,801 | 2,419 |
| Providence College | 25 | 0 | 0 | 0 | 25 | 0 |
| South Carolina, total | 137,269 | 45,718 | 17,384 | 12,931 | 50,859 | 10,377 |
| Public, total | 137,269 | 45,718 | 17,384 | 12,931 | 50,859 | 10,377 |
| Clemson University | 66,664 | 14,221 | 16,424 | 7,595 | 26,262 | 2,162 |
| Med Univ of So Carolina | 23,128 | 10,910 | 0 | 2,264 | 5,810 | 4,144 |
| Univ of South Carolina | 47,477 | 20,587 | 960 | 3,072 | 18,787 | 4,071 |
| South Dakota, total | 14,342 | 6,874 | 5,779 | 380 | 972 | 337 |
| Public, total | 14,342 | 6,874 | 5,779 | 380 | 972 | 337 |
| S Dak Sch Mines & Tech | 3,000 | 2,268 | 574 | 98 | 44 | 16 |
| South Dakota State Univ | 9,511 | 3,666 | 4,785 | 282 | 550 | 228 |
| Univ of South Dakota | 1,831 | 940 | 420 | 0 | 378 | 93 |
| Tennessee, total | 232,121 | 136,957 | 30,713 | 10,998 | 39,095 | 14,358 |
| Public, total | 150,396 | 63,819 | 30,670 | 8,647 | 36,955 | 10,305 |
| East Tennessee State Univ | 1,902 | 1,219 | 20 | 14 | 84 | 565 |
| Memphis State University | 12,073 | 2,666 | 3,051 | 239 | 5,551 | 566 |
| Tenn Technological Univ | 9,631 | 1,286 | 4,377 | 945 | 1,663 | 1,360 |
| Univ. Of Tennessee System | 126,790 | 58,648 | 23,222 | 7,449 | 29,657 | 7,814 |
| Private, total | 81,725 | 73,138 | 43 | 2,351 | 2,140 | 4,053 |
| Meharry Medical College | 6,663 | 6,391 | 0 | 38 | 185 | 49 |
| Vanderbilt University | 75,062 | 66,747 | 43 | 2,313 | 1,955 | 4,004 |
| Texas, total | 1,123,816 | 522,489 | 130,676 | 77,092 | 253,025 | 140,534 |
| Public, total | 922,245 | 411,255 | 124,069 | 64,466 | 234,024 | 88,431 |
| East Texas State Univ | 279 | 113 | 3 | 101 | 7 | 55 |
| Lamar University | 2,121 | 1,317 | 746 | 58 | 0 | 0 |
| Sam Houston State Univ | 380 | 93 | 7 | 50 | 184 | 46 |
| Stephen F Austin St Univ | 1,390 | 289 | 654 | 181 | 266 | 0 |
| Texas A & M University | 272,800 | 93,001 | 70,908 | 26,197 | 73,783 | 8,911 |
| Texas Tech University | 34,142 | 9,695 | 11,669 | 4,708 | 6,761 | 1,309 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

Page 9 of 10

| State, control and institution | Total | Federal Government | State and local governments | Industry | Institutional funds | All other sources |
|-----------------------------------|---------|-----------------------|-----------------------------------|----------|------------------------|----------------------|
| Texas, continued | | | | | | |
| Public, continued | | | | | | |
| Texas Woman's University | 1,336 | 476 | 537 | 258 | 65 | 0 |
| U Tex Hlth Sci Ctr Houstn | 45,707 | 29,017 | 1,066 | 5,142 | 4,185 | 6,297 |
| U Tex Hlth Sci Ctr S Anto | 45,663 | 29,431 | 2,241 | 6,166 | 4,901 | 2,924 |
| U Tex Med Brnch Galveston | 40,610 | 21,693 | 5,519 | 2,260 | 6,088 | 5,050 |
| U of Houston | 37,978 | 17,575 | 9,706 | 1,529 | 6,202 | 2,966 |
| UT MD Anderson Cancer Ctr | 91,283 | 28,889 | 0 | 0 | 41,501 | 20,893 |
| UT SW Medical Ctr-Dallas | 85,919 | 54,965 | 31 | 8,537 | 4,633 | 17,753 |
| Univ of North Texas | 9,741 | 1,974 | 3,749 | 2,407 | 1,611 | 0 |
| Univ of Tex at Arlington | 5,729 | 1,795 | 1,262 | 2,286 | 386 | 0 |
| Univ of Texas at Austin | 228,203 | 109,593 | 13,759 | 3,507 | 80,499 | 20,845 |
| Univ of Texas at Dallas | 12,075 | 5,888 | 1,266 | 740 | 2,799 | 1,382 |
| Univ of Texas at El Paso | 6,889 | 5,451 | 946 | 339 | 153 | 0 |
| Private, total | 201,571 | 111,234 | 6,607 | 12,626 | 19,001 | 52,103 |
| Baylor Col of Dentistry | 849 | 682 | 0 | 20 | 85 | 62 |
| Baylor Col of Medicine | 155,122 | 75,793 | 4,409 | 7,746 | 17,600 | 49,574 |
| Baylor University | 1,143 | 369 | 1 | 250 | 254 | 269 |
| Rice University | 26,267 | 19,997 | 1,211 | 3,616 | 0 | 1,443 |
| Southern Methodist Univ | 13,600E | 11,000E | 800E | 300E | 1,000E | 500E |
| Texas Christian Univ | 1,823 | 1,362 | 0 | 399 | 62 | 0 |
| Texas Col of Osteo Med | 2,767 | 2,031 | 186 | 295 | 0 | 255 |
| Utah, total | 187,076 | 126,619 | 17,049 | 7,377 | 29,237 | 6,794 |
| Public, total | 175,468 | 121,262 | 15,689 | 5,532 | 26,482 | 6,503 |
| University of Utah | 89,018 | 62,297 | 4,139 | 3,443 | 13,974 | 5,165 |
| Utah State University | 86,450 | 58,965 | 11,550 | 2,089 | 12,508 | 1,338 |
| Private, total | 11,608 | 5,357 | 1,360 | 1,845 | 2,755 | 291 |
| Brigham Young University | 11,608 | 5,357 | 1,360 | 1,845 | 2,755 | 291 |
| Vermont, total | 45,162 | 30,555 | 2,389 | 3,473 | 6,544 | 2,201 |
| Public, total | 45,162 | 30,555 | 2,389 | 3,473 | 6,544 | 2,201 |
| U of VT & State Agr Coll | 45,162 | 30,555 | 2,389 | 3,473 | 6,544 | 2,201 |
| Virginia, total | 321,547 | 170,128 | 54,703 | 25,965 | 46,627 | 24,124 |
| Public, total | 309,130 | 162,346 | 54,639 | 24,096 | 46,575 | 21,474 |
| College of William & Mary | 9,572 | 6,460 | 1,629 | 138 | 1,145 | 200 |
| George Mason University | 8,011 | 2,494 | 1,529 | 742 | 0 | 3,246 |
| Old Dominion U Res Fdn | 10,579 | 7,036 | 2,962 | 581 | 0 | 0 |
| University of Virginia | 96,815 | 58,801 | 6,960 | 6,406 | 13,215 | 11,433 |
| VA Polytech Inst & St U | 121,423 | 45,949 | 39,169 | 11,394 | 20,437 | 4,474 |
| Virginia Commonwealth Univ | 62,730 | 41,606 | 2,390 | 4,835 | 11,778 | 2,121 |
| Private, total | 12,417 | 7,782 | 64 | 1,869 | 52 | 2,650 |
| Eastern VA Medical School | 10,496 | 7,782 | 64 | 0 | 0 | 2,650 |
| Institute of Textile Tech | 1,921 | 0 | 0 | 1,869 | 52 | 0 |
| Washington, total | 312,169 | 230,237 | 9,474 | 24,738 | 37,428 | 10,292 |
| Public, total | 312,169 | 230,237 | 9,474 | 24,738 | 37,428 | 10,292 |
| University of Washington | 245,313 | 203,353 | 4,313 | 22,215 | 12,020 | 3,412 |
| Washington State Univ | 66,856 | 26,884 | 5,161 | 2,523 | 25,408 | 6,880 |
| West Virginia, total | 46,946 | 19,718 | 1,198 | 10,037 | 14,236 | 1,757 |
| Public, total | 46,946 | 19,718 | 1,198 | 10,037 | 14,236 | 1,757 |
| Marshall University | 1,270 | 1,244 | 0 | 0 | 26 | 0 |
| W VA Schl Osteopathic Med | 134 | 23 | 0 | 0 | 111 | 0 |
| West Virginia University | 45,542 | 18,451 | 1,198 | 10,037 | 14,099 | 1,757 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-29. R&D expenditures at doctorate-granting institutions,
by State, control, and source of funds: fiscal year 1990

[Dollars in thousands]

Page 10 of 10

| State, control, and institution | Total | Federal Government | State and local governments | Industry | Institu- tional funds | All other sources |
|------------------------------------|---------|-----------------------|-----------------------------------|----------|-----------------------------|----------------------|
| Wisconsin, total | 363,364 | 209,026 | 59,085 | 16,981 | 47,524 | 30,748 |
| Public, total | 325,480 | 185,577 | 57,900 | 12,553 | 43,952 | 25,498 |
| Univ of Wis-Madison | 309,841 | 178,862 | 52,319 | 12,123 | 42,045 | 24,492 |
| Univ of Wis-Milwaukee | 15,639 | 6,715 | 5,581 | 430 | 1,907 | 1,006 |
| Private, total | 37,884 | 23,449 | 1,185 | 4,428 | 3,572 | 5,250 |
| Marquette University | 3,262 | 1,855 | 0 | 1,239 | 168 | 0 |
| Medical College of Wis | 34,622 | 21,594 | 1,185 | 3,189 | 3,404 | 5,250 |
| Wyoming, total | 22,831 | 12,207 | 2,056 | 2,001 | 6,328 | 239 |
| Public, total | 22,831 | 12,207 | 2,056 | 2,001 | 6,328 | 239 |
| University of Wyoming | 22,831 | 12,207 | 2,056 | 2,001 | 6,328 | 239 |
| Puerto Rico, total | 44,071 | 24,413 | 7,380 | 316 | 10,008 | 1,954 |
| Public, total | 42,222 | 22,633 | 7,345 | 316 | 9,934 | 1,944 |
| Univ of P R-Mayaguez | 30,555 | 14,337 | 7,336 | 293 | 6,736 | 1,853 |
| Univ of P R-Med Sci Campus | 6,293 | 5,366 | 0 | 0 | 868 | 59 |
| Univ of P R-Rio Piedras | 5,374 | 2,980 | 9 | 23 | 2,330 | 32 |
| Private, total | 1,849 | 1,730 | 35 | 0 | 74 | 10 |
| Catholic U of PR | 286 | 265 | 21 | 0 | 0 | 0 |
| Ponce School of Medicine | 943 | 919 | 14 | 0 | 0 | 10 |
| U Ctrl Del Caribe Esc Med | 620 | 546 | 0 | 0 | 74 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier year may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table 8-30. R&D expenditures at doctorate-granting institutions,
by geographic division, State, and science and engineering field: fiscal year 1990

(Dollars in thousands)

| Division and State | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|----------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Total | 16,057,003 | 2,638,425 | 1,736,378 | 1,013,979 | 710,857 | 8,666,523 | 245,018 | 686,246 | 359,577 |
| New England | 1,418,016 | 215,958 | 201,021 | 139,287 | 57,641 | 679,664 | 27,501 | 74,722 | 22,222 |
| Connecticut | 298,076 | 27,387 | 20,854 | 9,168 | 10,388 | 217,026 | 6,195 | 5,720 | 1,338 |
| Maine | 23,605 | 2,925 | 891 | 4,350 | 43 | 13,779 | 294 | 1,323 | 0 |
| Massachusetts | 898,808 | 165,852 | 163,345 | 91,495 | 36,836 | 341,402 | 16,967 | 64,159 | 18,752 |
| New Hampshire | 69,731 | 7,735 | 8,165 | 10,235 | 719 | 38,977 | 306 | 1,650 | 1,944 |
| Rhode Island | 82,634 | 11,063 | 6,741 | 23,613 | 9,403 | 27,471 | 2,493 | 1,850 | 0 |
| Vermont | 45,162 | 996 | 1,025 | 426 | 252 | 41,009 | 1,246 | 20 | 188 |
| Middle Atlantic | 2,560,015 | 423,182 | 255,761 | 94,183 | 158,063 | 1,440,434 | 53,637 | 109,859 | 24,896 |
| New Jersey | 319,797 | 54,557 | 41,797 | 19,438 | 21,963 | 141,342 | 12,611 | 23,100 | 5,089 |
| New York | 1,410,700 | 176,662 | 149,881 | 56,910 | 73,113 | 877,925 | 25,254 | 45,473 | 5,482 |
| Pennsylvania | 829,518 | 191,963 | 64,083 | 17,835 | 62,987 | 421,267 | 15,772 | 41,286 | 14,325 |
| East North Central | 2,236,182 | 396,362 | 247,176 | 81,297 | 65,938 | 1,172,529 | 39,681 | 132,116 | 101,083 |
| Illinois | 647,863 | 98,730 | 73,955 | 29,028 | 28,371 | 314,160 | 11,140 | 26,039 | 66,440 |
| Indiana | 240,696 | 37,329 | 47,888 | 2,656 | 8,681 | 126,102 | 4,846 | 9,733 | 3,461 |
| Michigan | 527,070 | 88,435 | 46,562 | 19,933 | 12,039 | 285,057 | 9,269 | 49,812 | 15,963 |
| Ohio | 457,189 | 128,334 | 45,353 | 4,907 | 8,549 | 230,205 | 5,406 | 21,360 | 13,075 |
| Wisconsin | 363,364 | 43,534 | 33,418 | 24,773 | 8,298 | 217,005 | 9,020 | 25,172 | 2,144 |
| West North Central | 1,069,658 | 119,552 | 70,835 | 28,800 | 37,096 | 747,995 | 12,304 | 35,535 | 17,541 |
| Iowa | 232,147 | 36,807 | 22,894 | 1,089 | 10,062 | 147,956 | 1,591 | 9,220 | 2,528 |
| Kansas | 114,651 | 12,562 | 10,192 | 6,478 | 1,237 | 70,408 | 1,833 | 2,128 | 9,813 |
| Minnesota | 292,046 | 27,943 | 16,577 | 8,802 | 16,440 | 204,590 | 6,042 | 11,245 | 407 |
| Missouri | 281,133 | 21,715 | 14,254 | 4,537 | 7,713 | 221,648 | 2,035 | 6,891 | 2,340 |
| Nebraska | 105,373 | 9,709 | 4,890 | 3,112 | 1,327 | 82,154 | 447 | 3,336 | 398 |
| North Dakota | 29,966 | 9,581 | 1,501 | 2,921 | 317 | 12,520 | 295 | 1,756 | 1,075 |
| South Dakota | 14,342 | 1,235 | 527 | 1,861 | 0 | 8,719 | 61 | 959 | 980 |
| South Atlantic | 2,955,904 | 614,881 | 304,322 | 179,311 | 203,447 | 1,439,902 | 35,538 | 132,447 | 46,056 |
| Delaware | 40,119 | 12,251 | 6,869 | 6,721 | 1,888 | 9,093 | 592 | 2,705 | 0 |
| District of Columbia | 112,146 | 9,601 | 14,105 | 571 | 6,981 | 72,405 | 1,049 | 6,729 | 705 |
| Florida | 433,413 | 68,242 | 41,177 | 46,081 | 9,491 | 208,911 | 9,132 | 18,349 | 32,030 |
| Georgia | 445,011 | 128,071 | 30,653 | 17,347 | 23,859 | 209,625 | 7,498 | 27,541 | 4,417 |
| Maryland | 977,593 | 249,787 | 151,302 | 63,559 | 115,832 | 350,607 | 6,773 | 28,151 | 11,582 |
| North Carolina | 441,860 | 46,673 | 21,907 | 13,949 | 15,615 | 318,475 | 3,215 | 21,662 | 364 |
| South Carolina | 137,269 | 23,588 | 9,277 | 9,778 | 6,686 | 72,858 | 2,413 | 10,231 | 638 |
| Virginia | 321,547 | 71,487 | 27,590 | 14,991 | 10,643 | 175,912 | 4,718 | 15,906 | 300 |
| West Virginia | 46,946 | 5,381 | 1,442 | 6,314 | 10,452 | 22,016 | 148 | 1,173 | 20 |
| East South Central | 647,786 | 119,483 | 48,715 | 11,116 | 15,075 | 411,103 | 8,656 | 18,790 | 14,848 |
| Alabama | 239,556 | 41,810 | 19,357 | 4,209 | 8,334 | 157,934 | 1,660 | 3,485 | 2,767 |
| Kentucky | 90,880 | 13,290 | 2,956 | 374 | 676 | 63,816 | 220 | 2,396 | 7,152 |
| Mississippi | 85,229 | 15,071 | 9,049 | 1,735 | 351 | 51,356 | 575 | 3,814 | 3,278 |
| Tennessee | 232,121 | 49,312 | 17,353 | 4,798 | 5,714 | 137,997 | 6,201 | 9,095 | 1,651 |
| West South Central | 1,510,365 | 216,877 | 131,498 | 132,334 | 42,254 | 849,824 | 9,256 | 57,080 | 71,242 |
| Arkansas | 48,861 | 7,059 | 3,496 | 130 | 1,235 | 33,930 | 459 | 2,062 | 490 |
| Louisiana | 207,038 | 28,249 | 11,178 | 15,252 | 5,685 | 134,000 | 1,229 | 8,476 | 2,969 |
| Oklahoma | 130,650 | 27,086 | 10,051 | 10,692 | 3,924 | 62,357 | 802 | 11,927 | 3,811 |
| Texas | 1,123,816 | 154,483 | 106,773 | 106,260 | 31,410 | 619,537 | 6,766 | 34,615 | 63,972 |
| Mountain | 981,830 | 230,308 | 140,978 | 109,959 | 29,009 | 399,590 | 13,604 | 39,031 | 19,351 |
| Arizona | 260,187 | 33,166 | 76,753 | 30,522 | 6,629 | 90,378 | 3,414 | 15,335 | 3,990 |
| Colorado | 249,958 | 48,154 | 31,482 | 32,451 | 6,098 | 112,196 | 7,850 | 10,672 | 1,055 |
| Idaho | 36,570 | 6,900 | 2,131 | 2,220 | 77 | 22,946 | 27 | 1,893 | 376 |
| Montana | 34,980 | 3,181 | 4,449 | 412 | 238 | 23,391 | 22 | 2,664 | 623 |
| Nevada | 38,301 | 2,866 | 1,054 | 18,542 | 13 | 12,418 | 43 | 2,869 | 496 |
| New Mexico | 151,927 | 72,217 | 7,646 | 8,312 | 10,769 | 47,037 | 854 | 2,373 | 2,719 |
| Utah | 187,076 | 61,914 | 15,331 | 14,454 | 4,448 | 79,008 | 1,112 | 2,416 | 8,393 |
| Wyoming | 22,831 | 1,910 | 2,132 | 3,046 | 737 | 12,216 | 282 | 809 | 1,699 |
| Pacific | 2,633,176 | 300,206 | 334,576 | 236,268 | 102,230 | 1,488,347 | 44,799 | 85,246 | 41,504 |
| Alaska | 65,571 | 6,280 | 13,761 | 24,879 | 212 | 17,454 | 0 | 2,985 | 0 |
| California | 2,007,361 | 258,048 | 264,661 | 141,338 | 87,005 | 1,150,125 | 36,058 | 60,968 | 9,158 |
| Hawaii | 76,525 | 1,505 | 17,953 | 24,188 | 899 | 22,662 | 279 | 3,157 | 5,882 |
| Oregon | 171,550 | 11,363 | 20,443 | 23,751 | 4,323 | 98,895 | 3,061 | 4,978 | 4,736 |
| Washington | 312,169 | 23,010 | 17,758 | 22,112 | 9,791 | 199,211 | 5,401 | 13,158 | 21,728 |
| Outlying Areas | 44,071 | 1,616 | 1,496 | 1,424 | 104 | 37,135 | 42 | 1,420 | 834 |

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-31. R&D expenditures at doctorate-granting institutions,
by State, control, and science and engineering field: fiscal year 1990

(Dollars in thousands)

Page 1 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|----------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| United States, total | 16,057,003 | 2,638,425 | 1,736,378 | 1,013,979 | 710,857 | 8,666,523 | 245,018 | 686,246 | 359,577 |
| Public, total | 10,587,079 | 1,753,625 | 1,070,882 | 759,644 | 353,922 | 5,685,813 | 162,538 | 508,898 | 291,757 |
| Private, total | 5,469,924 | 884,800 | 665,496 | 254,335 | 356,935 | 2,980,710 | 82,480 | 177,348 | 67,820 |
| Alabama, total | 239,556 | 41,810 | 19,357 | 4,209 | 8,334 | 157,934 | 1,660 | 3,485 | 2,767 |
| Public, total | 239,556 | 41,810 | 19,357 | 4,209 | 8,334 | 157,934 | 1,660 | 3,485 | 2,767 |
| Auburn University | 66,795 | 18,819 | 3,778 | 201 | 1,110 | 40,638 | 46 | 549 | 1,654 |
| The University of Alabama | 21,488 | 6,709 | 3,910 | 2,244 | 1,974 | 2,400 | 831 | 2,762 | 658 |
| Univ Alabama Birmingham | 110,603 | 4,317 | 553 | 4 | 902 | 104,185 | 574 | 68 | 0 |
| Univ Alabama Huntsville | 29,565 | 11,918 | 11,024 | 1,406 | 4,314 | 482 | 3 | 12 | 406 |
| Univ of South Alabama | 11,105 | 47 | 92 | 354 | 34 | 10,229 | 206 | 94 | 49 |
| Alaska, total | 65,571 | 6,280 | 13,761 | 24,879 | 212 | 17,454 | 0 | 2,985 | 0 |
| Public, total | 65,571 | 6,280 | 13,761 | 24,879 | 212 | 17,454 | 0 | 2,985 | 0 |
| Univ of Alaska Fairbanks | 65,571 | 6,280 | 13,761 | 24,879 | 212 | 17,454 | 0 | 2,985 | 0 |
| Arizona, total | 260,187 | 33,166 | 76,753 | 30,522 | 6,629 | 90,378 | 3,414 | 15,335 | 3,990 |
| Public, total | 260,187 | 33,166 | 76,753 | 30,522 | 6,629 | 90,378 | 3,414 | 15,335 | 3,990 |
| Arizona State University | 58,652 | 18,618 | 14,490 | 7,529 | 2,164 | 5,655 | 2,138 | 6,797 | 1,261 |
| Northern Arizona Univ | 5,902 | 328 | 540 | 596 | 207 | 2,656 | 650 | 594 | 331 |
| University of Arizona | 195,633 | 14,220 | 61,723 | 22,397 | 4,258 | 82,067 | 626 | 7,944 | 2,398 |
| Arkansas, total | 48,861 | 7,059 | 3,496 | 130 | 1,235 | 33,930 | 459 | 2,062 | 490 |
| Public, total | 48,861 | 7,059 | 3,496 | 130 | 1,235 | 33,930 | 459 | 2,062 | 490 |
| U of Arkansas Med Sci Cam | 11,898 | 0 | 0 | 0 | 0 | 11,898 | 0 | 0 | 0 |
| Univ of Ark Fayetteville | 36,963 | 7,059 | 3,496 | 130 | 1,235 | 22,032 | 459 | 2,062 | 490 |
| California, total | 2,007,361 | 258,048 | 264,661 | 141,338 | 87,005 | 1,150,125 | 36,058 | 60,968 | 9,158 |
| Public, total | 1,410,219 | 128,398 | 161,179 | 112,529 | 33,883 | 891,950 | 21,027 | 52,952 | 8,301 |
| San Diego State Univ | 22,524 | 4,142 | 1,568 | 445 | 1,676 | 9,086 | 1,349 | 964 | 3,294 |
| U of California System | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| US Naval Postgrad School | 17,391 | 5,575 | 2,477 | 3,558 | 1,644 | 0 | 0 | 2,748 | 1,389 |
| Univ of Cal Berkeley | 231,061 | 52,124 | 50,711 | 5,389 | 5,314 | 87,951 | 6,414 | 19,550 | 3,608 |
| Univ of Cal Davis | 198,075 | 7,794 | 7,851 | 1,100 | 1,130 | 177,754 | 522 | 1,924 | 0 |
| Univ of Cal Irvine | 78,074 | 4,568 | 12,300 | 1,93 | 4,076 | 53,261 | 0 | 3,666 | 10 |
| Univ of Cal Los Angeles | 246,795 | 24,213 | 23,136 | 12,215 | 7,394 | 157,626 | 6,681 | 15,530 | 0 |
| Univ of Cal Riverside | 54,892 | 0 | 4,044 | 1,519 | 654 | 47,431 | 191 | 1,053 | 0 |
| Univ of Cal San Diego | 237,032 | 7,454 | 30,989 | 73,805 | 8,743 | 111,314 | 2,617 | 2,110 | 0 |
| Univ of Cal San Francisco | 238,278 | 0 | 0 | 0 | 0 | 238,278 | 0 | 0 | 0 |
| Univ of Cal Santa Barbara | 59,750 | 22,214 | 15,216 | 9,611 | 2,496 | 2,608 | 2,789 | 4,816 | 0 |
| Univ of Cal Santa Cruz | 26,347 | 314 | 12,887 | 4,694 | 756 | 6,641 | 464 | 591 | 0 |
| Private, total | 597,142 | 129,650 | 103,482 | 28,809 | 53,122 | 258,175 | 15,031 | 8,016 | 857 |
| Biola University | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cal Sch Prof Psych-Berkly | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cal Sch Prof Psych-Fresno | 1,382 | 0 | 0 | 0 | 0 | 0 | 1,382 | 0 | 0 |
| Cal Sch Prof Psych-L A | 1,316 | 0 | 0 | 0 | 0 | 0 | 1,316 | 0 | 0 |
| Cal Sch Prof Psych-S D | 661 | 01 | 01 | 01 | 01 | 01 | 661 | 01 | 01 |
| California Inst of Tech | 105,730 | 17,363 | 42,034 | 15,957 | 4,196 | 24,857 | 0 | 471 | 852 |
| Chas R Drew U of Med & Sc | 3,0981 | 01 | 01 | 01 | 01 | 2,4381 | 01 | 6601 | 01 |
| Claremont Univ Ctr & Grad | 583 | 0 | 0 | 0 | 184 | 0 | 183 | 216 | 0 |
| Col Osteo Med of Pacific | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fielding Institute | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fuller Theological Sem | 50 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 0 |
| Loma Linda University | 7,547 | 0 | 0 | 0 | 0 | 7,461 | 0 | 86 | 0 |
| Rand Grad Inst Pol Studies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Santa Clara University | 1,569 | 726 | 120 | 0 | 168 | 286 | 17 | 252 | 0 |
| Stanford University | 305,7001 | 83,6941 | 53,8441 | 5,6451 | 16,6421 | 138,5461 | 4,3971 | 2,9321 | 01 |
| The Wright Institute | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| US International Univ | 93 | 0 | 0 | 0 | 0 | 0 | 93 | 0 | 0 |
| Univ of Southern Cal | 169,102 | 27,713 | 7,463 | 7,207 | 31,932 | 83,856 | 7,527 | 3,399 | 5 |
| University of the Pacific | 897 | 1541 | 211 | 01 | 01 | 7221 | 01 | 01 | 01 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions
by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

Page 2 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|-----------------------------|---------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Colorado, total | 249,958 | 48,154 | 31,482 | 32,451 | 6,098 | 112,196 | 7,850 | 10,672 | 1,055 |
| Public, total | 239,856 | 42,783 | 28,395 | 32,451 | 6,035 | 111,834 | 6,807 | 10,496 | 1,055 |
| Colorado School of Mines | 10,943 | 6,097 | 2,283 | 601 | 724 | 0 | 0 | 192 | 1,046 |
| Colorado State University | 73,967 | 16,026 | 4,658 | 8,207 | 1,023 | 36,345 | 1,607 | 6,092 | 9 |
| Univ. of Northern Colorado | 223 | 0 | 16 | 0 | 90 | 91 | 22 | 4 | 0 |
| Univ. of Colorado | 154,723 | 20,660 | 21,438 | 23,643 | 4,198 | 75,398 | 5,178 | 4,208 | 0 |
| Private, total | 10,102 | 5,371 | 3,087 | 0 | 63 | 362 | 1,043 | 176 | 0 |
| University of Denver | 10,102 | 5,371 | 3,087 | 0 | 63 | 362 | 1,043 | 176 | 0 |
| Connecticut, total | 298,076 | 27,387 | 20,854 | 9,168 | 10,388 | 217,026 | 6,195 | 5,720 | 1,338 |
| Public, total | 113,349 | 20,655 | 3,937 | 6,796 | 2,420 | 72,266 | 2,912 | 3,025 | 1,338 |
| University of Connecticut | 113,349 | 20,655 | 3,937 | 6,796 | 2,420 | 72,266 | 2,912 | 3,025 | 1,338 |
| Private, total | 184,727 | 6,732 | 16,917 | 2,372 | 7,968 | 144,760 | 3,283 | 2,695 | 0 |
| Wesleyan University | 4,021 | 0 | 1,526 | 431 | 648 | 1,667 | 102 | 351 | 0 |
| Yale University | 180,706 | 6,732 | 15,391 | 2,329 | 7,320 | 143,093 | 3,181 | 2,660 | 0 |
| Delaware, total | 40,119 | 12,251 | 6,869 | 6,721 | 1,888 | 9,093 | 592 | 2,705 | 0 |
| Public, total | 40,119 | 12,251 | 6,869 | 6,721 | 1,888 | 9,093 | 592 | 2,705 | 0 |
| University of Delaware | 40,119 | 12,251 | 6,869 | 6,721 | 1,888 | 9,093 | 592 | 2,705 | 0 |
| District of Columbia, total | 112,146 | 9,601 | 14,105 | 571 | 6,981 | 72,405 | 1,049 | 6,729 | 705 |
| Private, total | 112,146 | 9,601 | 14,105 | 571 | 6,981 | 72,405 | 1,049 | 6,729 | 705 |
| American University | 4,127 | 0 | 1,145 | 0 | 67 | 1,085 | 154 | 1,676 | 0 |
| Catholic Univ. of America | 7,398 | 1,586 | 4,305 | 0 | 1 | 701 | 586 | 219 | 0 |
| George Washington Univ | 32,372 | 5,898 | 955 | 35 | 5,623 | 19,240 | 165 | 402 | 54 |
| Georgetown University | 50,867 | 0 | 3,998 | 388 | 1,251 | 41,120 | 70 | 3,389 | 651 |
| Howard University | 17,382 | 2,117 | 3,702 | 148 | 391 | 10,259 | 74 | 1,043 | 0 |
| Florida, total | 433,413 | 68,242 | 41,177 | 46,081 | 9,491 | 208,911 | 9,132 | 18,349 | 32,030 |
| Public, total | 330,465 | 64,698 | 38,625 | 24,669 | 8,912 | 139,226 | 7,408 | 16,527 | 30,400 |
| Florida A & M University | 15,847 | 1,485 | 2,080 | 0 | 293 | 7,539 | 0 | 4,450 | 0 |
| Florida Atlantic Univ | 4,985 | 2,482 | 489 | 0 | 114 | 1,218 | 565 | 117 | 0 |
| Florida State University | 62,933 | 965 | 13,839 | 7,996 | 3,027 | 7,866 | 3,166 | 6,785 | 19,289 |
| Univ. of Central Florida | 30,618 | 4,220 | 7,693 | 7,084 | 706 | 398 | 205 | 453 | 9,859 |
| Univ. of South Florida | 76,404 | 24,961 | 2,720 | 5,063 | 291 | 40,589 | 1,358 | 1,422 | 0 |
| University of Florida | 139,678 | 30,585 | 11,804 | 4,526 | 4,481 | 81,616 | 2,114 | 3,300 | 1,252 |
| Private, total | 102,948 | 3,544 | 2,552 | 21,412 | 579 | 69,685 | 1,724 | 1,822 | 1,630 |
| Florida Inst. of Tech | 7,003 | 1,633 | 1,050 | 1,544 | 143 | 1,287 | 95 | 8 | 1,243 |
| Nova University | 1,601 | 0 | 96 | 1,242 | 0 | 3 | 210 | 6 | 44 |
| University of Miami | 94,344 | 1,911 | 1,406 | 18,626 | 436 | 68,395 | 1,419 | 1,808 | 343 |
| Georgia, total | 445,011 | 128,071 | 30,653 | 17,347 | 23,859 | 209,625 | 7,498 | 27,541 | 417 |
| Public, total | 345,929 | 120,677 | 24,343 | 17,341 | 23,217 | 127,880 | 6,978 | 25,076 | 417 |
| Georgia Institute of Tech | 168,193 | 116,867 | 15,314 | 10,257 | 16,660 | 2,153 | 1,696 | 5,246 | 0 |
| Georgia State University | 8,942 | 0 | 2,323 | 347 | 1,004 | 1,933 | 1,626 | 1,292 | 417 |
| Medical Col. of Georgia | 12,052 | 0 | 0 | 0 | 0 | 12,052 | 0 | 0 | 0 |
| University of Georgia | 156,742 | 3,810 | 6,706 | 6,737 | 5,553 | 111,742 | 3,656 | 18,538 | 0 |
| Private, total | 99,082 | 7,394 | 6,310 | 6 | 642 | 81,745 | 520 | 2,465 | 0 |
| Clark Atlanta University | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Emory University | 82,774 | 0 | 4,631 | 6 | 272 | 74,880 | 520 | 2,465 | 0 |
| Inst. Paper Sci. and Tech | 5,761 | 3,240 | 1,551 | 0 | 370 | 600 | 0 | 0 | 0 |
| Mercer University | 4,656 | 4,154 | 128 | 0 | 0 | 374 | 0 | 0 | 0 |
| Morehouse School of Med | 5,891 | 0 | 0 | 0 | 0 | 5,891 | 0 | 0 | 0 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

Table B-31. R&D expenditures at doctorate-granting institutions,
by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

Page 3 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|---------------------------|---------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Hawaii, total | 76,525 | 1,505 | 17,953 | 24,188 | 899 | 22,662 | 279 | 3,157 | 5,882 |
| Public, total | 76,525 | 1,505 | 17,953 | 24,188 | 899 | 22,662 | 279 | 3,157 | 5,882 |
| Univ of Hawaii-Manoa | 76,525 | 1,505 | 17,953 | 24,188 | 899 | 22,662 | 279 | 3,157 | 5,882 |
| Idaho, total | 36,570 | 6,900 | 2,131 | 2,220 | 77 | 22,946 | 27 | 1,893 | 376 |
| Public, total | 36,570 | 6,900 | 2,131 | 2,220 | 77 | 22,946 | 27 | 1,893 | 376 |
| Idaho State University | 1,634 | 181 | 283 | 214 | 77 | 774 | 3 | 45 | 57 |
| University of Idaho | 34,936 | 6,719 | 1,848 | 2,006 | 0 | 22,172 | 24 | 1,848 | 319 |
| Illinois, total | 647,863 | 98,730 | 73,955 | 29,028 | 28,371 | 314,160 | 11,140 | 26,039 | 66,440 |
| Public, total | 350,764 | 76,598 | 34,981 | 23,310 | 23,135 | 123,241 | 6,611 | 19,396 | 43,492 |
| Illinois State University | 2,951 | 0 | 423 | 0 | 216 | 632 | 16 | 1,663 | 1 |
| Northern Illinois Univ | 8,930 | 4,221 | 1,943 | 545 | 674 | 2,292 | 285 | 2,769 | 0 |
| Southern Ill U-Carbondale | 25,873 | 4,193 | 1,153 | 895 | 2,335 | 12,853 | 503 | 1,411 | 2,530 |
| Univ of Ill Chicago | 85,268 | 5,486 | 8,204 | 1,121 | 1,904 | 59,462 | 275 | 3,309 | 5,507 |
| Univ of Ill Urbana | 227,742 | 66,497 | 23,258 | 20,749 | 18,006 | 48,002 | 5,532 | 10,244 | 35,454 |
| Private, total | 297,099 | 22,132 | 38,974 | 5,718 | 5,236 | 190,919 | 4,529 | 6,643 | 22,948 |
| Chicago Col of Osteo Med | 1,161 | 0 | 0 | 0 | 0 | 1,161 | 0 | 0 | 0 |
| De Paul University | 972 | 0 | 79 | 0 | 40 | 171 | 612 | 66 | 4 |
| Illinois Inst of Tech | 6,793 | 4,725 | 751 | 670 | 328 | 256 | 63 | 0 | 0 |
| Loyola Univ - Chicago | 12,260 | 0 | 286 | 0 | 102 | 10,236 | 944 | 689 | 3 |
| Northwestern University | 131,979 | 17,407 | 11,770 | 959 | 1,844 | 74,268 | 981 | 1,809 | 22,941 |
| Rush University | 21,284 | 0 | 0 | 0 | 0 | 20,363 | 921 | 0 | 0 |
| U Hlth Sci/Chgo Med Sch | 4,695 | 0 | 0 | 0 | 0 | 4,695 | 0 | 0 | 0 |
| University of Chicago | 117,955 | 0 | 26,088 | 4,089 | 2,922 | 79,769 | 1,008 | 4,079 | 0 |
| Indiana, total | 240,696 | 37,329 | 47,888 | 2,656 | 8,681 | 126,102 | 4,846 | 9,733 | 3,461 |
| Public, total | 221,323 | 32,699 | 37,153 | 2,609 | 8,238 | 123,074 | 4,696 | 9,663 | 3,191 |
| Ball State University | 850 | 102 | 69 | 52 | 117 | 384 | 85 | 36 | 5 |
| Indiana State University | 903 | 0 | 85 | 120 | 33 | 587 | 1 | 77 | 0 |
| Indiana University | 89,191 | 131 | 22,532 | 555 | 2,702 | 55,502 | 3,089 | 2,943 | 1,737 |
| Purdue University | 130,379 | 32,466 | 14,467 | 1,882 | 5,386 | 66,601 | 1,521 | 6,607 | 1,449 |
| Private, total | 19,373 | 4,630 | 10,735 | 47 | 443 | 3,028 | 150 | 70 | 270 |
| University of Notre Dame | 19,373 | 4,630 | 10,735 | 47 | 443 | 3,028 | 150 | 70 | 270 |
| Iowa, total | 232,147 | 36,807 | 22,894 | 1,089 | 10,062 | 147,956 | 1,591 | 9,220 | 2,528 |
| Public, total | 232,080 | 36,807 | 22,894 | 1,089 | 10,062 | 147,889 | 1,591 | 9,220 | 2,528 |
| Iowa St U of Sci & Tech | 115,945 | 26,974 | 5,396 | 548 | 8,314 | 65,403 | 541 | 6,289 | 2,480 |
| Univ of Northern Iowa | 357 | 126 | 0 | 1 | 3 | 100 | 41 | 38 | 48 |
| University of Iowa | 115,778 | 9,707 | 17,498 | 540 | 1,745 | 82,386 | 1,009 | 2,893 | 0 |
| Private, total | 67 | 0 | 0 | 0 | 0 | 67 | 0 | 0 | 0 |
| Univ Osteo Med & Hlth Sci | 67 | 0 | 0 | 0 | 0 | 67 | 0 | 0 | 0 |
| Kansas, total | 114,651 | 12,562 | 10,192 | 6,478 | 1,237 | 70,408 | 1,833 | 2,128 | 9,813 |
| Public, total | 114,651 | 12,562 | 10,192 | 6,478 | 1,237 | 70,408 | 1,833 | 2,128 | 9,813 |
| Kans St U - Ag & App Sci | 50,311 | 6,186 | 3,287 | 251 | 673 | 37,289 | 366 | 1,652 | 607 |
| University of Kansas | 61,144 | 4,318 | 6,635 | 6,196 | 437 | 32,597 | 1,426 | 329 | 9,206 |
| Wichita State University | 3,196 | 2,058 | 270 | 31 | 127 | 522 | 41 | 147 | 0 |
| Kentucky, total | 90,880 | 13,290 | 2,956 | 374 | 676 | 63,816 | 220 | 2,396 | 7,152 |
| Public, total | 90,880 | 13,290 | 2,956 | 374 | 676 | 63,816 | 220 | 2,396 | 7,152 |
| University of Kentucky | 74,959 | 12,172 | 1,827 | 131 | 588 | 51,789 | 218 | 1,082 | 7,152 |
| University of Louisville | 15,921 | 1,118 | 1,129 | 243 | 88 | 12,027 | 2 | 1,314 | 0 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions
by State, control, and science and engineering field: fiscal year 1990

(Dollars in thousands)

Page 4 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|-------------------------------|---------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Louisiana, total | 207,038 | 28,249 | 11,178 | 15,252 | 5,685 | 134,000 | 1,229 | 8,476 | 2,969 |
| Public, total | 148,729 | 25,662 | 9,717 | 15,046 | 4,981 | 86,105 | 882 | 4,636 | 1,700 |
| Louisiana State Univ | 135,849 | 20,890 | 9,164 | 14,845 | 1,954 | 83,104 | 795 | 4,036 | 1,061 |
| Louisiana Tech University | 3,894 | 3,019 | 11 | 0 | 0 | 874 | 0 | 0 | 0 |
| Northeast Louisiana Univ | 667 | 17 | 0 | 98 | 94 | 458 | 0 | 0 | 0 |
| Univ of Southwestern LA | 8,319 | 1,736 | 552 | 103 | 2,933 | 1,669 | 87 | 600 | 639 |
| Private, total | 58,309 | 2,587 | 1,461 | 206 | 704 | 47,895 | 347 | 3,840 | 1,269 |
| Tulane University | 56,407 | 2,587 | 1,043 | 206 | 704 | 46,411 | 347 | 3,840 | 1,269 |
| Xavier University of LA | 1,902 | 0 | 418 | 0 | 0 | 1,484 | 0 | 0 | 0 |
| Maine, total | 23,605 | 2,925 | 891 | 4,350 | 43 | 13,779 | 294 | 1,323 | 0 |
| Public, total | 23,605 | 2,925 | 891 | 4,350 | 43 | 13,779 | 294 | 1,323 | 0 |
| Univ of Maine Orono | 23,605 | 2,925 | 891 | 4,350 | 43 | 13,779 | 294 | 1,323 | 0 |
| Maryland, total | 977,593 | 249,787 | 151,302 | 63,559 | 115,832 | 350,607 | 6,773 | 28,151 | 11,582 |
| Public, total | 308,678 | 44,994 | 57,958 | 22,147 | 18,790 | 142,000 | 5,405 | 17,384 | 0 |
| U of MD Baltimore County | 5,385 | 1,011 | 1,581 | 0 | 571 | 1,135 | 411 | 676 | 0 |
| U of MD Center For EES | 15,652 | 0 | 0 | 15,652 | 0 | 0 | 0 | 0 | 0 |
| U of MD Eastern Shore | 1,850 | 19 | 121 | 58 | 43 | 1,542 | 0 | 67 | 0 |
| Unif Serv Univ of Hlth Sc | 36,080 | 0 | 0 | 0 | 0 | 36,080 | 0 | 0 | 0 |
| Univ of MD Balt Prof Sch | 83,689 | 0 | 0 | 0 | 0 | 83,689 | 0 | 0 | 0 |
| Univ of MD College Park | 166,022 | 43,964 | 56,256 | 6,437 | 18,176 | 19,554 | 4,994 | 16,641 | 0 |
| Private, total | 668,915 | 204,793 | 93,344 | 41,412 | 97,042 | 208,607 | 1,368 | 10,767 | 11,582 |
| Johns Hopkins Univ | 668,915 | 204,793 | 93,344 | 41,412 | 97,042 | 208,607 | 1,368 | 10,767 | 11,582 |
| Massachusetts, total | 898,808 | 165,852 | 163,345 | 91,495 | 36,836 | 341,402 | 16,967 | 64,159 | 18,752 |
| Public, total | 113,103 | 12,358 | 15,721 | 7,398 | 10,675 | 56,470 | 3,406 | 4,694 | 2,381 |
| Univ of Massachusetts | 101,812 | 9,239 | 12,984 | 5,979 | 9,775 | 54,677 | 3,406 | 4,680 | 1,072 |
| University of Lowell | 11,291 | 3,119 | 2,737 | 1,419 | 900 | 1,793 | 0 | 14 | 1,309 |
| Private, total | 785,705 | 153,494 | 147,624 | 84,097 | 26,161 | 284,932 | 13,561 | 59,465 | 16,371 |
| Boston College | 8,052 | 0 | 3,094 | 394 | 3,649 | 500 | 69 | 346 | 0 |
| Boston University | 73,655 | 3,723 | 8,956 | 115 | 1,063 | 54,067 | 482 | 1,636 | 3,613 |
| Brandeis University | 30,881 | 0 | 3,339 | 0 | 954 | 14,303 | 1,224 | 11,061 | 0 |
| Clark University | 1,281 | 0 | 590 | 299 | 88 | 70 | 234 | 0 | 0 |
| Harvard University | 220,812 | 998 | 28,340 | 6,303 | 3,909 | 136,522 | 2,064 | 39,668 | 3,008 |
| Mass Col Phar/Allied Hlth | 73 | 0 | 0 | 0 | 0 | 73 | 0 | 0 | 0 |
| Mass Inst of Technology | 311,767 | 127,004 | 98,119 | 12,247 | 14,697 | 37,711 | 7,856 | 4,645 | 9,488 |
| Northeastern University | 14,347 | 5,227 | 3,291 | 0 | 1,177 | 3,372 | 618 | 400 | 262 |
| Smith College | 1,398 | 0 | 188 | 187 | 123 | 304 | 160 | 436 | 0 |
| Tufts University | 47,009 | 2,117 | 1,383 | 4,148 | 174 | 37,300 | 854 | 1,033 | 0 |
| Woods Hole Oceanographic Inst | 71,747 | 11,343 | 0 | 60,404 | 0 | 0 | 0 | 0 | 0 |
| Worcester Poly Institute | 4,683 | 3,082 | 324 | 0 | 327 | 710 | 0 | 240 | 0 |
| Michigan, total | 527,070 | 88,435 | 46,562 | 19,933 | 12,039 | 285,057 | 9,269 | 49,812 | 15,963 |
| Public, total | 525,150 | 87,372 | 46,386 | 19,931 | 12,038 | 284,894 | 9,177 | 49,457 | 15,895 |
| Central Michigan Univ | 1,071 | 118 | 177 | 62 | 277 | 210 | 91 | 11 | 125 |
| Michigan State University | 126,987 | 14,650 | 20,898 | 1,758 | 478 | 73,035 | 2,930 | 6,622 | 6,616 |
| Michigan Tech University | 16,037 | 10,366 | 1,296 | 324 | 77 | 2,990 | 0 | 975 | 9 |
| Oakland University | 4,102 | 797 | 653 | 0 | 387 | 2,213 | 481 | 41 | 0 |
| University of Michigan | 310,578 | 53,905 | 15,329 | 17,154 | 10,142 | 162,379 | 5,388 | 39,203 | 7,078 |
| Wayne State University | 62,455 | 5,951 | 7,900 | 0 | 398 | 43,871 | 716 | 1,597 | 2,022 |
| Western Michigan Univ | 3,920 | 1,585 | 133 | 633 | 279 | 196 | 4 | 1,045 | 45 |
| Private, total | 1,920 | 1,063 | 176 | 2 | 1 | 163 | 92 | 355 | 68 |
| Andrews University | 394 | 2 | 5 | 2 | 1 | 73 | 0 | 311 | 0 |
| University of Detroit | 1,526 | 1,061 | 171 | 0 | 0 | 90 | 92 | 44 | 68 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions
by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

Page 5 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|---------------------------|---------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Minnesota, total | 292,046 | 27,943 | 16,577 | 8,802 | 16,440 | 204,590 | 6,042 | 11,245 | 407 |
| Public, total | 292,046 | 27,943 | 16,577 | 8,802 | 16,440 | 204,590 | 6,042 | 11,245 | 407 |
| University of Minnesota | 292,046 | 27,943 | 16,577 | 8,802 | 16,440 | 204,590 | 6,042 | 11,245 | 407 |
| Private, total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mayo Grad School of Med | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mississippi, total | 85,229 | 15,071 | 9,049 | 1,735 | 351 | 51,354 | 575 | 3,814 | 3,278 |
| Public, total | 85,229 | 15,071 | 9,049 | 1,735 | 351 | 51,356 | 575 | 3,814 | 3,278 |
| Mississippi State Univ | 58,492 | 12,433 | 1,644 | 1,318 | 112 | 36,357 | 0 | 3,350 | 3,278 |
| Univ of Sthrn Mississippi | 4,666 | 152 | 3,314 | 417 | 234 | 350 | 190 | 9 | 0 |
| University of Mississippi | 22,071 | 2,486 | 4,091 | 0 | 5 | 14,649 | 385 | 455 | 0 |
| Missouri, total | 281,133 | 21,715 | 14,254 | 4,537 | 7,713 | 221,648 | 2,035 | 6,891 | 2,340 |
| Public, total | 112,188 | 19,020 | 7,520 | 1,823 | 2,358 | 71,690 | 999 | 6,566 | 2,212 |
| Univ of Missouri Columbia | 84,311 | 9,738 | 1,997 | 935 | 271 | 64,257 | 927 | 5,694 | 492 |
| Univ of Missouri Kan City | 8,310 | 0 | 520 | 69 | 1,439 | 5,420 | 6 | 528 | 328 |
| Univ of Missouri Rolla | 14,285 | 9,207 | 2,792 | 497 | 490 | 296 | 14 | 16 | 973 |
| Univ of Missouri St Louis | 2,291 | 0 | 1,008 | 0 | 58 | 469 | 52 | 328 | 376 |
| Univ of Missouri Sys Off | 2,991 | 75 | 1,203 | 322 | 100 | 1,248 | 0 | 0 | 43 |
| Private, total | 168,945 | 2,695 | 6,734 | 2,714 | 5,355 | 149,958 | 1,036 | 325 | 128 |
| Kirksville Col Osteo Med | 539 | 0 | 0 | 0 | 0 | 538 | 0 | 1 | 0 |
| St Louis University | 17,157 | 0 | 180 | 715 | 47 | 16,083 | 0 | 4 | 128 |
| Univ of Health Sciences | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Washington University | 151,249 | 2,695 | 6,554 | 1,999 | 5,308 | 133,337 | 1,036 | 320 | 0 |
| Montana, total | 34,980 | 3,181 | 4,449 | 412 | 238 | 23,391 | 22 | 2,664 | 623 |
| Public, total | 34,980 | 3,181 | 4,449 | 412 | 238 | 23,391 | 22 | 2,664 | 623 |
| Montana State University | 27,648 | 2,871 | 4,410 | 292 | 215 | 18,593 | 7 | 1,260 | 0 |
| University of Montana | 7,332 | 310 | 39 | 120 | 23 | 4,798 | 15 | 1,404 | 623 |
| Nebraska, total | 105,373 | 9,709 | 4,890 | 3,112 | 1,327 | 82,154 | 447 | 3,336 | 398 |
| Public, total | 96,444 | 9,709 | 4,890 | 3,112 | 1,327 | 73,225 | 447 | 3,336 | 398 |
| U of Neb Med Ctr at Omaha | 17,844 | 0 | 0 | 0 | 0 | 17,844 | 0 | 0 | 0 |
| Univ of Nebraska at Omaha | 1,002 | 0 | 248 | 116 | 11 | 32 | 29 | 562 | 4 |
| Univ of Nebraska-Lincoln | 77,598 | 9,709 | 4,642 | 2,996 | 1,316 | 55,349 | 418 | 2,774 | 394 |
| Private, total | 8,929 | 0 | 0 | 0 | 0 | 8,929 | 0 | 0 | 0 |
| Creighton University | 8,929 | 0 | 0 | 0 | 0 | 8,929 | 0 | 0 | 0 |
| Nevada, total | 38,301 | 2,866 | 1,054 | 18,542 | 13 | 12,418 | 43 | 2,869 | 496 |
| Public, total | 38,301 | 2,866 | 1,054 | 18,542 | 13 | 12,418 | 43 | 2,869 | 496 |
| Desert Research Institute | 16,852 | 0 | 0 | 14,118 | 0 | 1,054 | 0 | 1,680 | 0 |
| Univ of Nevada - Reno | 21,449 | 2,866 | 1,054 | 4,424 | 13 | 11,364 | 43 | 1,189 | 496 |
| New Hampshire, total | 69,731 | 7,735 | 8,165 | 10,235 | 719 | 38,977 | 306 | 1,650 | 1,944 |
| Public, total | 25,994 | 2,334 | 5,668 | 9,309 | 260 | 5,538 | 105 | 1,123 | 1,657 |
| Univ of New Hampshire | 25,994 | 2,334 | 5,668 | 9,309 | 260 | 5,538 | 105 | 1,123 | 1,657 |
| Private, total | 43,737 | 5,401 | 2,497 | 926 | 459 | 33,439 | 201 | 527 | 287 |
| Dartmouth College | 43,737 | 5,401E | 2,497E | 926E | 459E | 33,439E | 201E | 527E | 287E |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions
by State, control, and science and engineering field: fiscal year 1990

(Dollars in thousands)

Page 6 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|---------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| New Jersey, total | 319,797 | 54,557 | 41,797 | 19,438 | 21,963 | 141,242 | 12,611 | 23,100 | 5,089 |
| Public, total | 217,439 | 26,204 | 17,544 | 10,871 | 14,875 | 123,412 | 6,198 | 13,246 | 5,089 |
| N J Inst of Technology | 15,225 | 4,510 | 271 | 4,922 | 2,086 | 0 | 0 | 241 | 3,195 |
| Rutgers the St Univ of NJ | 137,985 | 21,694 | 17,273 | 5,949 | 12,789 | 59,183 | 6,198 | 13,005 | 1,894 |
| Univ of Med & Dent of N J | 64,229 | 0 | 0 | 0 | 0 | 64,229 | 0 | 0 | 0 |
| Private, total | 102,358 | 28,353 | 24,253 | 8,567 | 7,088 | 17,830 | 6,413 | 9,854 | 0 |
| Fairleigh Dickinson Univ | 3,183 | 79 | 0 | 2,297 | 26 | 181 | 524 | 76 | 0 |
| Princeton University | 91,514 | 23,048 | 22,819 | 6,270 | 7,061 | 17,597 | 5,015 | 9,704 | 0 |
| Seton Hall University | 1,515 | 0 | 514 | 0 | 11 | 521 | 874 | 741 | 0 |
| Stevens Institute of Tech | 6,146 | 5,226 | 920 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Mexico, total | 151,927 | 72,217 | 7,646 | 8,312 | 10,769 | 47,037 | 854 | 2,373 | 2,719 |
| Public, total | 151,927 | 72,217 | 7,646 | 8,312 | 10,769 | 47,037 | 854 | 2,373 | 2,719 |
| N Mex Inst Mining & Tech | 22,911 | 16,090 | 1,877 | 4,576 | 243 | 125 | 0 | 0 | 0 |
| New Mexico State Univ | 71,288 | 35,725 | 2,690 | 2,108 | 9,964 | 19,797 | 302 | 372 | 330 |
| University of New Mexico | 57,728 | 20,402 | 3,079 | 1,628 | 562 | 27,115 | 552 | 2,001 | 2,389 |
| New York, total | 1,410,700 | 176,662 | 149,881 | 56,910 | 73,113 | 877,925 | 25,254 | 45,473 | 5,482 |
| Public, total | 325,119 | 35,380 | 41,571 | 22,968 | 10,414 | 185,573 | 10,703 | 16,017 | 2,493 |
| CUNY City College | 12,973 | 2,762 | 5,423 | 259 | 280 | 3,390 | 257 | 162 | 440 |
| CUNY Grad Sch & Univ Ctr | 3,858 | 0 | 0 | 0 | 1,046 | 1,522 | 774 | 512 | 4 |
| CUNY Hunter College | 6,928 | 0 | 2,657 | 338 | 108 | 2,677 | 845 | 249 | 54 |
| SUNY Col of Env Sci & For | 18,671 | 6,240 | 1,538 | 2,177 | 359 | 7,940 | 0 | 409 | 8 |
| SUNY Hlth Sci Ctr - Brkln | 22,873 | 0 | 0 | 0 | 0 | 22,873 | 0 | 0 | 0 |
| SUNY Hlth Sci Ctr - Syrcs | 35,193 | 0 | 0 | 0 | 0 | 35,193 | 0 | 0 | 0 |
| SUNY St Coll of Optometry | 483 | 0 | 0 | 0 | 0 | 483 | 0 | 0 | 0 |
| SUNY at Albany | 22,034 | 0 | 2,303 | 8,881 | 914 | 2,928 | 2,797 | 4,211 | 0 |
| SUNY at Binghamton | 10,680 | 733 | 1,820 | 619 | 548 | 1,918 | 2,186 | 2,856 | 0 |
| SUNY at Buffalo | 109,190 | 23,166 | 6,952 | 820 | 3,492 | 66,568 | 2,794 | 4,421 | 977 |
| SUNY at Stony Brook | 82,236 | 2,479 | 20,878 | 9,874 | 3,667 | 40,081 | 1,050 | 3,197 | 1,010 |
| Private, total | 1,085,581 | 141,282 | 108,310 | 33,942 | 62,699 | 692,352 | 14,551 | 29,456 | 2,989 |
| Adelphi University | 6331 | 0 | 489 | 0 | 0 | 851 | 591 | 0 | 0 |
| Albany Med Ctr Grad Sch | 9,431 | 0 | 0 | 0 | 0 | 9,431 | 0 | 0 | 0 |
| Alfred University | 4,067 | 4,067 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CUNY Mt Sinai Sch of Med | 63,752 | 0 | 0 | 0 | 0 | 63,752 | 0 | 0 | 0 |
| Clarkson University | 8,392 | 5,381 | 2,120 | 0 | 416 | 334 | 8 | 0 | 133 |
| Columbia U Teachers Col | 803 | 0 | 0 | 0 | 39 | 0 | 556 | 208 | 0 |
| Columbia Univ Main Div | 182,769 | 17,647 | 16,361 | 24,529 | 4,462 | 113,392 | 1,261 | 5,117 | 0 |
| Cornell University | 300,144 | 39,663 | 44,887 | 6,215 | 27,146 | 166,595 | 2,909 | 12,049 | 680 |
| Fordham University | 2,501 | 0 | 209 | 1 | 66 | 707 | 63 | 1,455 | 0 |
| Hofstra University | 515 | 92 | 0 | 0 | 29 | 271 | 0 | 123 | 0 |
| Long Island University | 171 | 0 | 34 | 22 | 4 | 41 | 27 | 43 | 0 |
| New Sch For Soc Research | 1,026 | 0 | 0 | 0 | 0 | 0 | 318 | 708 | 0 |
| New York Inst Technology | 3,087 | 743 | 286 | 0 | 1,486 | 572 | 0 | 0 | 0 |
| New York Medical College | 13,244 | 0 | 0 | 0 | 0 | 13,244 | 0 | 0 | 0 |
| New York University | 108,511 | 0 | 3,110 | 139 | 10,968 | 84,854 | 3,605 | 4,532 | 1,303 |
| Polytechnic University | 10,919 | 7,864 | 2,614 | 0 | 49 | 0 | 0 | 39 | 353 |
| Rensselaer Polytech Inst | 47,363 | 33,993 | 6,263 | 1,189 | 3,783 | 1,326 | 134 | 293 | 377 |
| Rockefeller University | 75,245 | 0 | 11,661 | 0 | 866 | 62,718 | 0 | 0 | 0 |
| St John's University (NY) | 759 | 0 | 9 | 0 | 0 | 659 | 91 | 0 | 0 |
| Syracuse University | 33,811 | 7,560 | 5,968 | 1,347 | 10,647 | 4,619 | 486 | 3,183 | 1 |
| Union College (NY) | 5,459 | 1,414 | 970 | 206 | 654 | 706 | 303 | 1,206 | 0 |
| University of Rochester | 129,011 | 22,858 | 13,329 | 294 | 2,079 | 85,078 | 4,731 | 500 | 142 |
| Yeshiva University | 83,968 | 0 | 0 | 0 | 0 | 83,968 | 0 | 0 | 0 |
| North Carolina, total | 441,860 | 46,673 | 21,907 | 13,949 | 15,615 | 318,475 | 3,215 | 21,662 | 364 |
| Public, total | 261,498 | 40,181 | 12,219 | 11,429 | 12,769 | 168,530 | 1,616 | 14,608 | 146 |
| East Carolina University | 6,098 | 0 | 105 | 936 | 0 | 4,440 | 1 | 565 | 51 |
| N C State Univ at Raleigh | 131,133 | 40,181 | 5,611 | 5,301 | 4,773 | 71,258 | 219 | 3,790 | 0 |
| Univ of N C at Greensboro | 1,154 | 0 | 22 | 0 | 32 | 562 | 383 | 60 | 95 |
| Univ of NC at Chapel Hill | 123,113 | 0 | 6,481 | 5,192 | 7,964 | 92,270 | 1,013 | 10,193 | 0 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions
by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

Page 7 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|---------------------------|---------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| North Carolina, continued | | | | | | | | | |
| Private, total | 180,362 | 6,492 | 9,688 | 2,520 | 2,846 | 149,945 | 1,599 | 7,054 | 218 |
| Duke University | 140,708 | 6,492 | 9,085 | 2,520 | 2,696 | 111,309 | 1,558 | 7,048 | 0 |
| Wake Forest University | 39,654 | 0 | 603 | 0 | 150 | 38,636 | 41 | 6 | 218 |
| North Dakota, total | 29,966 | 9,581 | 1,501 | 2,921 | 317 | 12,520 | 295 | 1,756 | 1,075 |
| Public, total | 29,966 | 9,581 | 1,501 | 2,921 | 317 | 12,520 | 295 | 1,756 | 1,075 |
| North Dakota State Univ | 12,468 | 1,310 | 1,448 | 39 | 317 | 7,865 | 280 | 895 | 314 |
| University of N Dakota | 17,498 | 8,271 | 53 | 2,882 | 0 | 4,655 | 15 | 861 | 761 |
| Ohio, total | 457,189 | 128,334 | 45,353 | 4,907 | 8,549 | 230,205 | 5,406 | 21,360 | 13,075 |
| Public, total | 327,628 | 78,563 | 33,988 | 4,593 | 7,215 | 169,450 | 2,690 | 18,054 | 13,075 |
| Air Force Inst of Tech/Nr | 2,200 | 956 | 515 | 45 | 684 | 0 | 0 | 0 | 0 |
| Bowling Green State Univ | 3,400 | 0 | 1,095 | 44 | 157 | 1,179 | 469 | 61 | 395 |
| Cleveland State Univ | 8,699 | 3,950 | 716 | 13 | 25 | 63 | 39 | 3,893 | 0 |
| Kent State University | 7,172 | 77 | 3,375 | 198 | 1,415 | 1,370 | 234 | 368 | 135 |
| Med Col of Ohio at Toledo | 7,159 | 0 | 0 | 0 | 0 | 7,159 | 0 | 0 | 0 |
| Miami University (Ohio) | 2,203 | 581 | 622 | 881 | 31 | 557 | 200 | 306 | 369 |
| NE Ohio Univ Med School | 1,409 | 0 | 0 | 0 | 0 | 1,409 | 0 | 0 | 0 |
| Ohio State University | 178,569 | 43,810 | 12,802 | 3,685 | 2,828 | 93,307 | 395 | 12,383 | 9,359 |
| Ohio University | 12,982 | 5,766 | 1,661 | 141 | 28 | 4,921 | 365 | 100 | 0 |
| University of Akron | 10,372 | 4,435 | 4,748 | 8 | 347 | 169 | 196 | 469 | 0 |
| University of Cincinnati | 74,461 | 14,150 | 4,669 | 179 | 476 | 51,495 | 324 | 351 | 2,817 |
| University of Toledo | 3,551 | 2,750 | 1,457 | 21 | 99 | 1,018 | 184 | 22 | 0 |
| Wright State University | 13,451 | 2,611 | 2,328 | 171 | 1,153 | 6,803 | 284 | 101 | 0 |
| Private, total | 129,561 | 49,771 | 11,365 | 314 | 1,334 | 60,755 | 2,716 | 3,306 | 0 |
| Antioch University | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Case Western Reserve Univ | 93,384 | 19,049 | 10,022 | 244 | 207 | 60,411 | 263 | 3,188 | 0 |
| Union Institute | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| University of Dayton | 36,177 | 30,722 | 1,343 | 70 | 1,127 | 344 | 2,453 | 118 | 0 |
| Oklahoma, total | 130,650 | 27,086 | 10,051 | 10,692 | 3,924 | 62,357 | 802 | 11,927 | 3,811 |
| Public, total | 126,265 | 24,374 | 9,867 | 10,525 | 3,502 | 61,648 | 677 | 11,861 | 3,811 |
| OSU College of Osteo Med | 1,935 | 0 | 0 | 0 | 0 | 1,935 | 0 | 0 | 0 |
| Oklahoma State University | 65,685 | 15,639 | 4,837 | 1,469 | 1,058 | 32,289 | 318 | 6,866 | 3,209 |
| University of Oklahoma | 58,645 | 8,735 | 5,030 | 9,056 | 2,444 | 27,424 | 359 | 4,995 | 602 |
| Private, total | 4,385 | 2,712 | 184 | 167 | 422 | 709 | 125 | 66 | 0 |
| Oral Roberts University | 60 | 25 | 7 | 0 | 6 | 21 | 0 | 1 | 0 |
| University of Tulsa | 4,325 | 2,687 | 177 | 167 | 416 | 688 | 125 | 65 | 0 |
| Oregon, total | 171,550 | 11,363 | 20,443 | 23,751 | 4,323 | 98,895 | 3,061 | 4,978 | 4,736 |
| Public, total | 162,288 | 9,722 | 16,659 | 21,586 | 2,651 | 98,895 | 3,061 | 4,978 | 4,736 |
| Oregon Hlth Sciences Univ | 41,420 | 0 | 0 | 0 | 0 | 40,070 | 1,350 | 0 | 0 |
| Oregon State University | 90,688 | 8,459 | 3,635 | 18,623 | 1,705 | 51,442 | 88 | 2,300 | 4,436 |
| Portland State University | 3,834 | 473 | 910 | 308 | 168 | 367 | 71 | 1,474 | 63 |
| University of Oregon | 26,346 | 790 | 12,114 | 2,655 | 778 | 7,016 | 1,552 | 1,204 | 237 |
| Private, total | 9,262 | 1,641 | 3,784 | 2,165 | 1,672 | 0 | 0 | 0 | 0 |
| Oregon Grad Inst Sci/Tech | 9,262 | 1,641 | 3,784 | 2,165 | 1,672 | 0 | 0 | 0 | 0 |
| Pennsylvania, total | 829,518 | 191,963 | 64,083 | 17,835 | 62,987 | 421,267 | 15,772 | 41,286 | 14,325 |
| Public, total | 424,091 | 124,248 | 32,250 | 14,362 | 5,630 | 211,149 | 7,390 | 20,877 | 8,185 |
| Pennsylvania State Univ | 256,926 | 118,070 | 16,625 | 14,095 | 3,553 | 83,743 | 4,565 | 8,943 | 7,332 |
| Temple University | 49,449 | 234 | 2,721 | 8 | 404 | 37,121 | 1,242 | 7,688 | 31 |
| University of Pittsburgh | 117,716 | 5,944 | 12,904 | 259 | 1,673 | 90,285 | 1,583 | 4,246 | 822 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions
by State, control, and science and engineering field: fiscal year 1990

(Dollars in thousands)

Page 8 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|---------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Pennsylvania, continued | | | | | | | | | |
| Private, total | 405,427 | 67,715 | 31,833 | 3,473 | 57,357 | 210,116 | 8,382 | 20,409 | 6,140 |
| Bryn Mawr College | 1,854 | 0 | 456 | 292 | 105 | 368 | 156 | 477 | 0 |
| Carnegie-Mellon Univ | 100,201 | 24,000 | 7,203 | 1,886 | 46,574 | 11,450 | 4,458 | 3,412 | 1,268 |
| Drexel University | 20,079 | 12,835 | 3,061 | 828 | 997 | 948 | 210 | 1,200 | 0 |
| Duquesne University | 558 | 0 | 162 | 0 | 15 | 325 | 0 | 56 | 0 |
| Hahnemann University | 13,595 | 0 | 0 | 0 | 0 | 12,134 | 1,461 | 0 | 0 |
| Lehigh University | 27,255 | 19,596 | 5,238 | 359 | 568 | 938 | 282 | 274 | 0 |
| Phila Col Osteopathic Med | 340 | 0 | 0 | 0 | 0 | 340 | 0 | 0 | 0 |
| Phila Col of Pharm & Sci | 1,153 | 0 | 0 | 0 | 0 | 1,153 | 0 | 0 | 0 |
| The Medical Col of Penna | 18,643 | 0 | 0 | 0 | 0 | 18,643 | 0 | 0 | 0 |
| Thomas Jefferson Univ | 30,969 | 0 | 0 | 0 | 0 | 30,969 | 0 | 0 | 0 |
| Univ of Pennsylvania | 189,390 | 10,832 | 15,494 | 108 | 8,983 | 132,599 | 1,546 | 14,956 | 4,872 |
| Villanova University | 1,390 | 452 | 219 | 0 | 115 | 301 | 269 | 34 | 0 |
| Rhode Island, total | 82,634 | 11,063 | 6,741 | 23,613 | 9,403 | 27,471 | 2,493 | 1,850 | 0 |
| Public, total | 35,846 | 3,907 | 568 | 18,944 | 114 | 9,817 | 943 | 1,553 | 0 |
| Univ of Rhode Island | 35,846 | 3,907 | 568 | 18,944 | 114 | 9,817 | 943 | 1,553 | 0 |
| Private, total | 46,788 | 7,156 | 6,173 | 4,669 | 9,289 | 17,654 | 1,550 | 297 | 0 |
| Brown University | 46,763 | 7,156 | 6,162 | 4,669 | 9,289 | 17,654 | 1,550 | 283 | 0 |
| Providence College | 25 | 0 | 11 | 0 | 0 | 0 | 0 | 14 | 0 |
| South Carolina, total | 137,269 | 23,388 | 9,277 | 9,778 | 8,686 | 72,858 | 2,413 | 10,231 | 638 |
| Public, total | 137,269 | 23,388 | 9,277 | 9,778 | 8,686 | 72,858 | 2,413 | 10,231 | 638 |
| Clemson University | 66,664 | 16,414 | 3,567 | 161 | 6,692 | 34,611 | 152 | 4,888 | 179 |
| Med Univ of So Carolina | 23,128 | 0 | 0 | 0 | 0 | 23,128 | 0 | 0 | 0 |
| Univ of South Carolina | 47,477 | 6,974 | 5,710 | 9,617 | 1,994 | 15,119 | 2,261 | 5,343 | 459 |
| South Dakota, total | 14,342 | 1,235 | 527 | 1,861 | 0 | 8,719 | 61 | 959 | 980 |
| Public, total | 14,342 | 1,235 | 527 | 1,861 | 0 | 8,719 | 61 | 959 | 980 |
| S Dak Sch Mines & Tech | 3,000 | 441 | 75 | 1,504 | 0 | 0 | 0 | 0 | 980 |
| South Dakota State Univ | 9,511 | 794 | 176 | 352 | 0 | 7,699 | 0 | 490 | 0 |
| Univ of South Dakota | 1,831 | 0 | 276 | 5 | 0 | 1,020 | 61 | 469 | 0 |
| Tennessee, total | 232,121 | 9,312 | 17,353 | 4,798 | 5,714 | 137,997 | 6,201 | 9,095 | 1,651 |
| Public, total | 150,396 | 42,025 | 10,672 | 4,679 | 5,290 | 74,088 | 4,457 | 7,534 | 1,651 |
| East Tennessee State Univ | 1,902 | 0 | 40 | 71 | 15 | 1,705 | 3 | 33 | 35 |
| Memphis State University | 12,073 | 1,100 | 312 | 2,946 | 355 | 2,465 | 3,139 | 1,756 | 0 |
| Tenn Technological Univ | 9,631 | 7,832 | 540 | 55 | 60 | 942 | 5 | 47 | 150 |
| Univ. Of Tennessee System | 126,790 | 33,093 | 9,780 | 1,607 | 4,860 | 68,976 | 1,310 | 5,698 | 1,466 |
| Private, total | 81,725 | 7,287 | 6,681 | 119 | 424 | 63,909 | 1,744 | 1,561 | 0 |
| Meharry Medical College | 6,663 | 0 | 0 | 0 | 0 | 6,663 | 0 | 0 | 0 |
| Vanderbilt University | 75,062 | 7,287 | 6,681 | 119 | 424 | 57,246 | 1,744 | 1,561 | 0 |
| Texas, total | 1,123,816 | 154,483 | 106,773 | 106,260 | 31,410 | 619,537 | 6,766 | 34,615 | 63,972 |
| Public, total | 922,245 | 148,271 | 95,581 | 96,348 | 22,870 | 456,770 | 5,307 | 33,596 | 63,502 |
| East Texas State Univ | 279 | 0 | 200 | 0 | 0 | 53 | 0 | 26 | 0 |
| Lamar University | 2,121 | 1,768 | 128 | 88 | 69 | 14 | 19 | 35 | 0 |
| Sam Houston State Univ | 380 | 0 | 239 | 12 | 1 | 90 | 12 | 26 | 0 |
| Stephen F Austin St Univ | 1,390 | 0 | 160 | 18 | 17 | 842 | 26 | 64 | 263 |
| Texas A & M University | 272,800 | 62,791 | 17,538 | 64,027 | 5,475 | 106,885 | 686 | 9,329 | 6,069 |
| Texas Tech University | 34,142 | 8,801 | 3,147 | 774 | 542 | 15,486 | 134 | 4,620 | 638 |
| Texas Woman's University | 1,336 | 0 | 38 | 0 | 2 | 1,294 | 1 | 1 | 0 |
| U Tex Hlth Sci Ctr Houstn | 45,707 | 0 | 0 | 519 | 0 | 44,345 | 0 | 843 | 0 |
| U Tex Hlth Sci Ctr S Anto | 45,663 | 0 | 0 | 0 | 0 | 45,663 | 0 | 0 | 0 |
| U Tex Med Brnch Galveston | 40,610 | 0 | 0 | 0 | 0 | 40,610 | 0 | 0 | 0 |
| U of Houston | 37,978 | 8,027 | 19,290 | 1,934 | 1,109 | 4,847 | 1,584 | 1,119 | 68 |
| UT MD Anderson Cancer Ctr | 91,283 | 0 | 4,106 | 0 | 2,358 | 84,819 | 0 | 0 | 0 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions,
by State, control, and science and engineering field: fiscal year 1990

(Dollars in thousands)

Page 9 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|----------------------------|---------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Texas, continued | | | | | | | | | |
| Public, continued | | | | | | | | | |
| UT SW Medical Ctr-Dallas | 85,919 | 0 | 0 | 0 | 0 | 85,919 | 0 | 0 | 0 |
| Univ of North Texas | 9,741 | 496 | 2,042 | 1,425 | 866 | 2,213 | 117 | 1,366 | 1,216 |
| Univ of Tex at Arlington | 5,729 | 2,849 | 1,476 | 111 | 628 | 398 | 31 | 169 | 67 |
| Univ of Texas at Austin | 228,203 | 58,968 | 40,985 | 25,285 | 10,543 | 19,785 | 2,259 | 15,335 | 55,043 |
| Univ of Texas at Dallas | 12,075 | 1,172 | 5,314 | 1,467 | 848 | 2,529 | 218 | 389 | 138 |
| Univ of Texas at El Paso | 6,889 | 3,399 | 918 | 688 | 412 | 978 | 220 | 274 | 0 |
| Private, total | 201,571 | 6,212 | 11,192 | 9,912 | 8,540 | 162,767 | 1,459 | 1,019 | 470 |
| Baylor Col of Dentistry | 849 | 0 | 0 | 0 | 0 | 849 | 0 | 0 | 0 |
| Baylor Col of Medicine | 155,122 | 0 | 0 | 0 | 0 | 155,122 | 0 | 0 | 0 |
| Baylor University | 1,143 | 0 | 899 | 37 | 90 | 112 | 0 | 5 | 0 |
| Rice University | 26,267 | 4,703 | 8,470 | 2,849 | 6,718 | 2,917 | 435 | 175 | 0 |
| Southern Methodist Univ | 13,600E | 1,509I | 1,138I | 7,011I | 1,723I | 743I | 170I | 836I | 470I |
| Texas Christian Univ | 1,823 | 0 | 685 | 15 | 9 | 257 | 854 | 3 | 0 |
| Texas Col of Osteo Med | 2,767 | 0 | 0 | 0 | 0 | 2,767 | 0 | 0 | 0 |
| Utah, total | 187,076 | 61,914 | 15,331 | 14,454 | 4,448 | 79,008 | 1,112 | 2,416 | 8,393 |
| Public, total | 175,468 | 57,196 | 12,546 | 14,364 | 4,353 | 77,220 | 1,111 | 2,024 | 6,654 |
| University of Utah | 89,018 | 16,502 | 8,115 | 3,521 | 4,057 | 55,460 | 614 | 749 | 0 |
| Utah State University | 86,450 | 40,694 | 4,431 | 10,843 | 296 | 21,760 | 497 | 1,275 | 6,654 |
| Private, total | 11,608 | 4,718 | 2,785 | 90 | 95 | 1,788 | 1 | 392 | 1,739 |
| Brigham Young University | 11,608 | 4,718 | 2,785 | 90 | 95 | 1,788 | 1 | 392 | 1,739 |
| Vermont, total | 45,162 | 996 | 1,025 | 426 | 252 | 41,009 | 1,246 | 20 | 188 |
| Public, total | 45,162 | 996 | 1,025 | 426 | 252 | 41,009 | 1,246 | 20 | 188 |
| U of VT & State Agr Coll | 45,162 | 996 | 1,025 | 426 | 252 | 41,009 | 1,246 | 20 | 188 |
| Virginia, total | 321,547 | 71,487 | 27,590 | 14,991 | 10,643 | 175,912 | 4,718 | 15,906 | 300 |
| Public, total | 309,130 | 70,153 | 27,331 | 14,886 | 10,420 | 165,416 | 4,718 | 15,906 | 300 |
| College of William & Mary | 9,572 | 0 | 3,157 | 4,574 | 1,060 | 359 | 243 | 179 | 0 |
| George Mason University | 8,011 | 3,550 | 104 | 20 | 691 | 496 | 223 | 2,926 | 1 |
| Old Dominion U Res Fdn | 10,579 | 3,966 | 1,272 | 1,536 | 1,210 | 2,533 | 11 | 51 | 0 |
| University of Virginia | 96,815 | 18,116 | 11,212 | 5,322 | 3,902 | 51,023 | 2,406 | 4,535 | 299 |
| VA Polytech Inst & St U | 121,423 | 44,473 | 9,710 | 3,434 | 3,438 | 52,477 | 1,209 | 6,682 | 0 |
| Virginia Commonwealth Univ | 62,730 | 48 | 1,876 | 0 | 119 | 58,528 | 626 | 1,533 | 0 |
| Private, total | 12,417 | 1,334 | 259 | 105 | 223 | 10,496 | 0 | 0 | 0 |
| Eastern VA Medical School | 10,496 | 0 | 0 | 0 | 0 | 10,496 | 0 | 0 | 0 |
| Institute of Textile Tech | 1,921 | 1,334 | 259 | 105 | 223 | 0 | 0 | 0 | 0 |
| Washington, total | 312,169 | 23,010 | 17,758 | 22,112 | 9,791 | 199,211 | 5,401 | 13,158 | 21,728 |
| Public, total | 312,169 | 23,010 | 17,758 | 22,112 | 9,791 | 199,211 | 5,401 | 13,158 | 21,728 |
| University of Washington | 245,313 | 16,985 | 15,333 | 21,389 | 9,183 | 152,755 | 5,097 | 4,921 | 19,650 |
| Washington State Univ | 66,856 | 6,025 | 2,425 | 723 | 608 | 46,456 | 304 | 8,237 | 2,078 |
| West Virginia, total | 46,946 | 5,381 | 1,442 | 6,314 | 10,452 | 22,016 | 148 | 1,173 | 20 |
| Public, total | 46,946 | 5,381 | 1,442 | 6,314 | 10,452 | 22,016 | 148 | 1,173 | 20 |
| Marshall University | 1,270 | 0 | 5 | 0 | 0 | 1,257 | 5 | 3 | 0 |
| W VA Schl Osteopathic Med | 134 | 0 | 0 | 0 | 0 | 134 | 0 | 0 | 0 |
| West Virginia University | 45,542 | 5,381 | 1,437 | 6,314 | 10,452 | 20,625 | 143 | 1,170 | 20 |
| Wisconsin, total | 363,364 | 43,534 | 33,418 | 24,773 | 8,298 | 217,005 | 9,020 | 25,172 | 2,144 |
| Public, total | 325,480 | 42,494 | 32,713 | 24,773 | 8,108 | 181,250 | 9,014 | 25,133 | 1,995 |
| Univ of Wis-Madison | 309,841 | 39,781 | 29,538 | 22,033 | 7,871 | 178,337 | 8,553 | 22,661 | 1,067 |
| Univ of Wis-Milwaukee | 15,639 | 2,713 | 3,175 | 2,740 | 237 | 2,913 | 461 | 2,472 | 928 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-31. R&D expenditures at doctorate-granting institutions,
by State, control, and science and engineering field: fiscal year 1990

[Dollars in thousands]

Page 10 of 10

| State and Institution | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psychology | Social sciences | Other sciences |
|----------------------------|--------|------------------|----------------------|--------------------------------|--------------------------------|------------------|------------|--------------------|-------------------|
| Wisconsin, continued | | | | | | | | | |
| Private, total | 37,884 | 1,040 | 705 | 0 | 190 | 35,755 | 6 | 39 | 149 |
| Marquette University | 3,262 | 1,040 | 705 | 0 | 190 | 1,133 | 6 | 39 | 149 |
| Medical College of Wis | 34,622 | 0 | 0 | 0 | 0 | 34,622 | 0 | 0 | 0 |
| Wyoming, total | 22,831 | 1,910 | 2,132 | 3,046 | 737 | 12,216 | 282 | 809 | 1,699 |
| Public, total | 22,831 | 1,910 | 2,132 | 3,046 | 737 | 12,216 | 282 | 809 | 1,699 |
| University of Wyoming | 22,831 | 1,910 | 2,132 | 3,046 | 737 | 12,216 | 282 | 809 | 1,699 |
| Puerto Rico, total | 44,071 | 1,616 | 1,496 | 1,424 | 104 | 37,135 | 42 | 1,420 | 834 |
| Public, total | 42,222 | 1,616 | 1,210 | 1,424 | 104 | 35,572 | 42 | 1,420 | 834 |
| Univ of P R-Mayaguez | 30,555 | 1,616 | 171 | 1,424 | 30 | 27,165 | 22 | 0 | 127 |
| Univ of P R-Med Sci Campus | 6,293 | 0 | 0 | 0 | 0 | 6,293 | 0 | 0 | 0 |
| Univ of P R-Rio Piedras | 5,374 | 0 | 1,039 | 0 | 74 | 2,114 | 20 | 1,420 | 707 |
| Private, total | 1,849 | 0 | 286 | 0 | 0 | 1,563 | 0 | 0 | 0 |
| Catholic U of PR | 286 | 0 | 286 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ponce School of Medicine | 943 | 0 | 0 | 0 | 0 | 943 | 0 | 0 | 0 |
| U Ctrl Del Caribe Esc Med | 620 | 0 | 0 | 0 | 0 | 620 | 0 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 1 of 10

| Institution ranking | Total | | | | | | | |
|-------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| Total, all institutions | 16,324,610 | 15,009,084 | 13,463,868 | 12,154,249 | 10,926,227 | 9,686,962 | 8,617,182 | 7,877,257 |
| 1 Johns Hopkins Univ 1/ | 668,915 | 648,395 | 557,016 | 510,896 | 440,844 | 398,630 | 350,891 | 303,115E |
| 2 Mass Inst of Technology 2/ | 311,767 | 287,157 | 270,584 | 264,416 | 257,726 | 242,966 | 222,134 | 200,349 |
| 3 University of Michigan | 310,578 | 280,905 | 250,169 | 224,890 | 187,859 | 163,713 | 155,987 | 132,864 |
| 4 Univ of Wis-Madison | 309,841 | 285,982 | 271,418 | 254,493 | 231,099 | 208,425 | 184,190 | 168,282 |
| 5 Stanford University 2/ | 305,7001 | 285,994 | 277,504 | 240,885 | 223,162 | 199,185 | 174,675 | 157,745 |
| 6 Cornell University 2/ | 300,144 | 286,733 | 271,659 | 253,971 | 225,400 | 203,226 | 169,450 | 153,323 |
| 7 University of Minnesota | 292,046 | 258,614 | 236,115 | 222,381 | 201,743 | 173,322 | 158,223 | 151,441 |
| 8 Texas A & M University | 272,800 | 250,706 | 231,161 | 219,853 | 207,362E | 184,899E | 157,397E | 136,885E |
| 9 Pennsylvania State Univ | 256,926 | 219,930 | 188,444 | 165,841 | 146,270 | 113,196 | 95,061 | 89,767 |
| 10 Univ of Cal Los Angeles | 246,795 | 227,828 | 209,338 | 188,831 | 168,158 | 149,744 | 132,134 | 113,266 |
| Total, 1st 10 insts. | 3,275,512 | 3,032,244 | 2,763,408 | 2,546,457 | 2,289,623 | 2,037,306 | 1,800,142 | 1,607,037 |
| 11 University of Washington | 245,313 | 221,712 | 190,735 | 187,062 | 186,572 | 163,962 | 146,947 | 133,523 |
| 12 Univ of Cal San Francisco | 238,278 | 219,446 | 193,289 | 169,436 | 147,785 | 131,348 | 113,404 | 89,247 |
| 13 Univ of Cal San Diego | 237,032 | 216,991 | 200,472 | 183,047 | 161,054 | 145,550 | 140,987 | 147,008 |
| 14 Univ of Cal Berkeley 2/ | 231,061 | 209,967 | 186,372 | 175,273 | 158,990 | 149,900 | 133,811 | 118,951 |
| 15 Univ of Texas at Austin | 228,203 | 193,337 | 172,608 | 168,931 | 145,324 | 126,657 | 114,664 | 110,570 |
| 16 Univ of Ill Urbana | 227,742 | 210,590 | 197,393 | 188,682 | 158,947 | 139,563 | 119,198 | 99,135 |
| 17 Harvard University | 220,812 | 209,519 | 190,429 | 169,074 | 154,390 | 138,063 | 124,330E | 118,602E |
| 18 Univ of Cal Davis | 198,075 | 180,297 | 154,655 | 143,798 | 123,788 | 114,862 | 105,791 | 98,118 |
| 19 University of Arizona | 195,633 | 174,119 | 155,464 | 138,726 | 124,790 | 105,765 | 94,946 | 89,192 |
| 20 Univ of Pennsylvania | 189,390 | 173,744 | 159,218 | 158,334 | 152,746 | 130,397 | 121,963 | 113,499 |
| Total, 1st 20 insts. | 5,487,051 | 5,041,966 | 4,564,043 | 4,228,820 | 3,804,009 | 3,383,373 | 3,016,183 | 2,724,882 |
| 21 Columbia Univ Main Div | 182,769 | 172,145 | 160,976 | 149,904 | 145,416 | 136,577 | 124,292 | 113,847 |
| 22 Yale University | 180,706 | 171,139 | 162,188 | 145,818 | 136,072 | 117,023 | 103,711 | 100,269 |
| 23 Ohio State University | 178,569 | 173,485 | 154,652 | 123,246 | 112,623 | 103,350 | 87,402 | 83,108 |
| 24 Univ of Southern Cal | 169,102 | 162,013 | 150,009 | 134,995 | 116,399 | 97,282 | 87,278 | 84,395 |
| 25 Georgia Institute of Tech | 168,193 | 174,664 | 143,051 | 120,342 | 105,457 | 90,445 | 88,507 | 82,924 |
| 26 Univ of MD College Park | 166,022 | 149,510 | 135,531 | 126,239 | 101,650 | 91,905 | 79,857 | 77,188E |
| 27 University of Georgia | 156,742 | 145,953 | 137,692 | 124,442 | 111,745 | 91,253 | 83,829 | 70,665 |
| 28 Baylor Col of Medicine | 155,122 | 134,681 | 106,814 | 90,179 | 68,993 | 63,197 | 56,746 | 54,986 |
| 29 Univ. of Colorado | 154,723 | 143,720 | 128,015 | 112,276 | 104,576 | 93,416 | 85,433 | 75,798 |
| 30 Washington University | 151,249 | 128,419 | 117,829 | 103,419 | 90,226 | 80,233 | 77,392 | 69,357 |
| Total, 1st 30 insts. | 7,150,248 | 6,597,695 | 5,960,800 | 5,459,680 | 4,897,166 | 4,348,054 | 3,890,630 | 3,537,419 |
| 31 Duke University | 140,708 | 131,090 | 113,968 | 89,556 | 78,831 | 68,899 | 61,025 | 55,040 |
| 32 University of Florida | 139,678 | 125,770 | 107,177 | 104,245 | 95,327 | 91,298 | 85,057 | 73,467 |
| 33 Rutgers the St Univ of NJ | 137,985 | 124,574 | 105,150 | 94,555 | 79,894 | 59,392 | 51,568 | 49,729 |
| 34 Louisiana State Univ | 135,849 | 122,357 | 114,698 | 102,070 | 91,709 | 90,280 | 74,676 | 70,408 |
| 35 Northwestern University | 131,979 | 118,991 | 102,755 | 88,920 | 80,178 | 72,337 | 68,246 | 51,075 |
| 36 N C State Univ at Raleigh | 131,133 | 123,441 | 110,286 | 102,647 | 92,695 | 87,996 | 75,824 | 59,909 |
| 37 Purdue University | 130,379 | 124,323 | 118,797 | 107,131 | 102,126 | 88,866 | 83,478 | 75,510 |
| 38 University of Rochester 1/ | 129,011 | 123,997 | 114,061 | 101,598 | 95,824 | 86,650 | 73,970 | 65,305 |
| 39 Michigan State University | 126,987 | 121,456 | 116,320 | 111,810 | 100,861 | 92,515 | 85,426 | 79,043 |
| 40 Univ. Of Tennessee System | 126,790 | 124,820 | 101,869 | 91,520 | 78,249 | 71,948 | 56,988 | 53,040 |
| Total, 1st 40 insts. | 8,480,747 | 7,838,514 | 7,065,881 | 6,453,732 | 5,793,060 | 5,158,235 | 4,606,888 | 4,169,945 |
| 41 Univ of NC at Chapel Hill | 123,113 | 122,097 | 107,039 | 93,754 | 85,454 | 75,958 | 53,960 | 50,892 |
| 42 VA Polytech Inst & St U | 121,423 | 104,266 | 89,955 | 80,552 | 75,450 | 61,966 | 53,113 | 47,802 |
| 43 University of Chicago 2/ | 117,955 | 109,429 | 98,541 | 91,879 | 88,026 | 79,929 | 77,022 | 75,314 |
| 44 University of Pittsburgh | 117,716 | 111,265 | 98,609 | 84,183 | 74,059 | 63,796 | 53,540 | 47,313 |
| 45 Iowa St U of Sci & Tech 2/ | 115,945 | 103,174 | 86,726 | 78,351 | 72,642 | 67,276 | 62,472 | 64,861 |
| 46 University of Iowa | 115,778 | 105,900 | 94,552 | 79,090 | 73,596 | 64,923 | 56,770 | 54,771 |
| 47 University of Connecticut | 113,349 | 109,328 | 89,630 | 81,575 | 74,287 | 75,155 | 69,167 | 58,902 |
| 48 Univ Alabama Birmingham | 110,603 | 100,666 | 85,030 | 72,692 | 59,401 | 47,167 | 40,407 | 31,311 |
| 49 SUNY at Buffalo | 109,190 | 100,291 | 87,635 | 70,474 | 64,404 | 57,045 | 52,711 | 50,129 |
| 50 New York University | 108,511 | 104,451 | 100,872 | 98,924 | 92,787 | 83,896 | 73,688 | 68,544 |
| Total, 1st 50 insts. | 9,634,330 | 8,909,381 | 8,004,470 | 7,285,206 | 6,553,166 | 5,835,346 | 5,199,738 | 4,719,784 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at
universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 2 of 10

| Institution ranking | Total | | | | | | | |
|----------------------------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 51 California Inst of Tech 2/ | 105,730 | 98,731 | 92,530 | 86,565 | 78,776 | 65,810 | 50,409 | 49,824 |
| 52 Univ of Massachusetts | 101,812 | 110,644 | 93,117 | 79,814 | 73,453 | 60,771 | 52,965 | 48,360 |
| 53 Carnegie-Mellon Univ | 100,201 | 101,635 | 94,051 | 83,763 | 71,920 | 60,292 | 53,787 | 43,174 |
| 54 University of Virginia | 96,815 | 81,281 | 74,572 | 63,861 | 57,472 | 51,653 | 41,815 | 37,620 |
| 55 University of Miami | 94,344 | 90,298 | 70,783 | 65,158 | 64,154 | 58,035 | 51,057 | 48,283 |
| 56 Case Western Reserve Univ | 93,384 | 86,168 | 77,303 | 70,850 | 57,530E | 51,598 | 47,217 | 42,691 |
| 57 Princeton University | 91,514 | 82,914 | 76,891 | 65,089 | 51,789 | 46,027 | 40,877 | 37,017 |
| 58 UT MD Anderson Cancer Ctr | 91,283 | 85,903 | 75,642 | 65,417 | 63,318 | 56,137 | 49,317 | 44,509 |
| 59 Oregon State University | 90,688 | 91,355 | 88,953 | 82,786 | 74,768 | 74,768 | 67,320 | 62,723 |
| 60 Indiana University | 89,191 | 81,793 | 73,526 | 65,341 | 59,160 | 54,796 | 47,645 | 44,331 |
| Total, 1st 60 insts. | 10,589,292 | 9,820,103 | 8,821,838 | 8,013,850 | 7,208,906 | 6,415,233 | 5,702,147 | 5,178,336 |
| 61 University of Utah | 89,018 | 83,340 | 75,789 | 68,194 | 60,478 | 54,354 | 50,416 | 46,830 |
| 62 Utah State University | 86,450 | 69,944 | 59,273 | 41,343 | 42,351 | 37,526 | 36,642 | 36,711 |
| 63 UT SW Medical Ctr-Dallas | 85,919 | 79,920 | 70,392 | 62,907 | 52,619 | 46,671 | 42,461 | 36,456 |
| 64 Univ of Ill Chicago | 85,268 | 83,329 | 75,922 | 64,701 | 56,846 | 48,734 | 44,544 | 44,497 |
| 65 Univ of Missouri Columbia | 84,311 | 74,055 | 66,365 | 61,212 | 57,653 | 50,765 | 46,075 | 44,231 |
| 66 Yeshiva University | 83,968 | 74,496 | 75,383 | 73,773 | 70,260 | 66,656 | 58,893 | 53,812 |
| 67 Univ of MD Balt Prof Sch | 83,689 | 75,854 | 68,787 | 57,931 | 36,934 | 32,097I | 27,261I | 22,425I |
| 68 Emory University | 82,774 | 64,713 | 60,896 | 58,889 | 51,115 | 30,706 | 27,522 | 26,284 |
| 69 SUNY at Stony Brook | 82,236 | 79,455 | 79,410 | 54,850 | 54,197 | 47,495 | 41,848 | 36,941 |
| 70 Univ of Cal Irvine | 78,074 | 66,806 | 60,100 | 51,691 | 49,979 | 44,458 | 37,023 | 33,293 |
| Total, 1st 70 insts. | 11,430,999 | 10,572,015 | 9,514,155 | 8,609,341 | 7,739,338 | 6,874,695 | 6,114,832 | 5,557,816 |
| 71 Univ of Nebraska-Lincoln | 77,598 | 68,281 | 60,788 | 56,066 | 55,158 | 47,809 | 42,920 | 44,597 |
| 72 Univ of Hawaii-Manoa | 76,525 | 70,733 | 64,278 | 57,345 | 57,383 | 54,025 | 51,051 | 45,401 |
| 73 Univ of South Florida | 76,404 | 60,973 | 40,396 | 38,633 | 11,707 | 9,186 | 8,251 | 6,502 |
| 74 Rockefeller University | 75,245 | 73,945 | 68,588 | 66,760 | 63,216 | 59,159 | 55,353 | 52,000 |
| 75 Vanderbilt University | 75,062 | 65,218 | 60,591 | 43,589 | 37,715 | 34,180 | 29,760 | 26,322 |
| 76 University of Kentucky | 74,959 | 69,532 | 69,003 | 55,042 | 53,770 | 47,387 | 45,058 | 40,829 |
| 77 University of Cincinnati | 74,461 | 69,831 | 60,479 | 53,804 | 44,368 | 42,709 | 39,747 | 35,195 |
| 78 Colorado State University | 73,967 | 64,351 | 59,369 | 53,619 | 49,359 | 44,171 | 42,876 | 41,572 |
| 79 Boston University | 73,655 | 66,325 | 61,505 | 58,299 | 53,225 | 44,135 | 39,272 | 32,421 |
| 80 Woods Hole Oceanographic Inst | 71,747 | 74,881 | 58,700 | 48,061 | 43,675 | 43,132 | 43,454 | 42,070 |
| Total, 1st 80 insts. | 12,180,622 | 11,256,085 | 10,117,852 | 9,139,559 | 8,208,914 | 7,300,588 | 6,512,574 | 5,924,725 |
| 81 New Mexico State Univ | 71,288 | 60,930 | 61,001 | 58,672 | 51,917 | 46,198 | 41,646 | 41,579 |
| 82 Washington State Univ | 66,856 | 55,173 | 51,319 | 48,865 | 46,392 | 45,878 | 38,304 | 36,878 |
| 83 Auburn University | 66,795 | 53,814 | 52,737 | 48,045 | 47,930 | 36,279 | 29,977 | 26,176 |
| 84 Clemson University | 66,664 | 56,699 | 49,375 | 46,495 | 38,963 | 32,326 | 29,900 | 27,643 |
| 85 Oklahoma State University | 65,685 | 53,655 | 56,636 | 47,420 | 45,919 | 49,094 | 48,727 | 44,099I |
| 86 Univ of Alaska Fairbanks | 65,571 | 56,701 | 49,856E | 47,432I | 45,008I | 42,884I | 40,160I | 37,736 |
| 87 Univ of Med & Dent of N J | 64,229 | 54,451 | 42,027 | 32,222 | 30,322 | 23,521 | 20,113 | 18,831 |
| 88 CUNY Mt Sinai Sch of Med | 63,752 | 56,856 | 49,727 | 46,137 | 40,193 | 37,750 | 31,273 | 28,561 |
| 89 Florida State University | 62,933 | 55,245 | 50,679 | 46,420 | 44,179 | 34,969 | 29,840 | 22,767 |
| 90 Virginia Commonwealth Univ | 62,730 | 52,193 | 42,951 | 42,329 | 38,729 | 35,221 | 25,761 | 26,235 |
| Total, 1st 90 insts. | 12,837,125 | 11,811,802 | 10,624,160 | 9,603,596 | 8,638,466 | 7,684,408 | 6,848,275 | 6,235,230 |
| 91 Wayne State University | 62,455 | 59,521 | 50,509 | 39,335 | 33,589 | 27,941 | 26,386 | 23,990 |
| 92 University of Kansas | 61,144 | 57,111 | 51,723 | 50,603 | 47,853 | 41,021I | 34,192I | 27,363I |
| 93 Univ of Cal Santa Barbara | 59,750 | 50,067 | 46,598 | 42,704 | 36,516 | 30,055 | 27,404 | 22,884 |
| 94 Arizona State University | 58,652 | 44,044 | 39,510 | 38,763 | 33,580 | 28,953 | 22,048 | 22,294 |
| 95 University of Oklahoma | 58,645 | 53,956 | 50,047 | 45,350 | 37,328 | 42,290 | 40,129 | 40,987 |
| 96 Mississippi State Univ | 58,492 | 53,670 | 45,005 | 40,405 | 43,813 | 41,376 | 38,410 | 35,714 |
| 97 University of New Mexico | 57,728 | 52,970 | 47,729E | 49,764E | 45,581 | 45,581 | 33,161 | 32,069I |
| 98 Tulane University | 56,407 | 45,195 | 42,619 | 38,393 | 34,871 | 28,144 | 23,919 | 22,440 |
| 99 Univ of Cal Riverside | 54,892 | 53,213 | 52,983 | 51,158 | 47,881 | 44,233 | 40,233 | 37,236 |
| 100 Georgetown University | 50,867 | 53,597 | 44,783 | 35,981 | 29,254 | 27,878 | 24,187 | 19,885 |
| Total, 1st 100 insts. | 13,416,157 | 12,335,146 | 11,095,666 | 10,036,052 | 9,033,007 | 8,041,880 | 7,158,344 | 6,520,092 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table 8-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 3 of 10

| Institution ranking | Total | | | | | | | |
|-------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 101 Kans St U - Ag & App Sci | 50,311 | 47,302 | 43,174 | 40,587 | 40,708 | 37,233 | 35,598 | 35,130 |
| 102 Temple University | 49,449 | 45,482 | 40,941 | 36,013 | 32,610 | 26,668 | 25,601 | 24,632 |
| 103 Univ of South Carolina | 47,477 | 40,421 | 31,836 | 29,658 | 28,362 | 22,765 | 17,830 | 14,631 |
| 104 Rensselaer Polytech Inst | 47,363 | 39,185 | 36,511 | 25,176 | 21,237 | 19,129 | 19,149 | 23,084 |
| 105 Tufts University | 47,009 | 50,424 | 54,225 | 46,497 | 40,707 | 35,082 | 29,375 | 23,668 |
| 106 Brown University | 46,763 | 43,564 | 41,556 | 38,110 | 31,906 | 28,344 | 25,771 | 22,805 |
| 107 U Tex Hlth Sci Ctr Houstn | 45,707 | 46,860 | 43,345 | 39,158 | 32,564 | 26,566 | 20,526 | 19,362 |
| 108 U Tex Hlth Sci Ctr S Anto | 45,663 | 42,201 | 39,673 | 34,476 | 33,165 | 29,845 | 25,911 | 24,743 |
| 109 West Virginia University | 45,542 | 37,569 | 28,807 | 25,676 | 23,376 | 21,462 | 19,183 | 18,798 |
| 110 U of VT & State Agr Coll | 45,162 | 42,743 | 36,815 | 31,547 | 29,699 | 27,606 | 22,268 | 18,805 |
| Total, 1st 110 insts. | 13,886,603 | 12,771,197 | 11,492,549 | 10,378,950 | 9,347,419 | 8,316,580 | 7,399,556 | 6,745,750 |
| 111 Dartmouth College | 43,737 | 38,452 | 35,563 | 31,227 | 26,067 | 20,908 | 15,749 | 16,347 |
| 112 Oregon Hlth Sciences Univ | 41,420 | 35,097 | 29,509 | 26,062 | 21,418 | 17,785 | 16,016 | 15,561 |
| 113 U Tex Med Brnch Galveston | 40,610 | 38,717 | 33,047 | 24,351 | 23,312 | 22,273 | 19,515 | 19,011 |
| 114 University of Delaware | 40,119 | 37,194 | 32,023 | 21,681 | 28,798 | 23,605 | 21,343 | 19,080 |
| 115 Wake Forest University | 39,654 | 37,156 | 30,568 | 23,596 | 20,705 | 17,818 | 14,931 | 12,044 |
| 116 U of Houston | 37,978 | 34,229 | 26,803 | 22,053 | 22,053 | 16,011 | 14,007 | 13,102 |
| 117 Univ of Ark Fayetteville | 36,963 | 32,842 | 28,104 | 27,435 | 28,566 | 24,536 | 21,925 | 21,908 |
| 118 University of Dayton | 36,177 | 31,984 | 31,483 | 30,105 | 27,478 | 25,005 | 23,556 | 19,930 |
| 119 Unif Serv Univ of Hlth Sc | 36,080 | 27,062 | 15,991 | 12,076 | 12,960 | 10,536 | 8,890 | 6,997 |
| 120 Univ of Rhode Island | 35,846 | 36,219 | 35,940 | 27,369 | 27,805 | 28,241 | 23,481 | 23,240 |
| Total, 1st 120 insts. | 14,275,187 | 13,120,149 | 11,791,580 | 10,637,230 | 9,586,581 | 8,523,298 | 7,578,969 | 6,912,970 |
| 121 SUNY Hlth Sci Ctr - Syrcs | 35,193 | 31,125 | 24,541 | 21,186 | 18,065 | 18,301 | 18,361 | 15,756 |
| 122 University of Idaho | 34,936 | 31,879 | 30,078 | 24,070 | 23,068 | 20,460 | 19,232 | 17,453 |
| 123 Medical College of Wis | 34,622 | 34,951 | 33,231 | 30,218 | 21,356 | 19,859 | 18,015 | 16,175 |
| 124 Texas Tech University | 34,142 | 33,612 | 28,722 | 27,876 | 25,068 | 18,588 | 16,592 | 14,597 |
| 125 Syracuse University | 33,811 | 35,543 | 33,643 | 30,348 | 27,289 | 24,340 | 16,859 | 17,565 |
| 126 George Washington Univ | 32,372 | 30,284 | 23,522 | 24,320 | 20,927 | 17,534 | 19,693 | 20,638 |
| 127 Thomas Jefferson Univ | 30,969 | 29,405 | 22,231 | 20,357 | 12,402 | 11,969 | 10,593 | 15,580 |
| 128 Brandeis University | 30,881 | 30,596 | 26,618 | 23,811 | 21,006 | 18,201 | 18,291 | 15,431 |
| 129 Univ of Central Florida | 30,618 | 30,991 | 11,307 | 9,571 | 7,835 | 6,114 | 7,047 | 7,980 |
| 130 Univ of P R-Mayaguez | 30,555 | 29,343 | 27,091 | 24,491 | 22,728 | 20,967 | 19,206 | 17,445 |
| Total, 1st 130 insts. | 14,603,286 | 13,437,878 | 12,054,564 | 10,873,478 | 9,786,325 | 8,699,631 | 7,742,858 | 7,071,590 |
| 131 Univ Alabama Huntsville | 29,565 | 26,186 | 18,628 | 11,158 | 7,284 | 5,415 | 4,242 | 3,662 |
| 132 Montana State University | 27,648 | 25,968 | 25,227 | 23,093 | 20,960 | 19,703 | 19,858 | 18,896 |
| 133 Lehigh University | 27,255 | 26,004 | 27,089 | 24,893 | 20,294 | 17,558 | 15,731 | 14,463 |
| 134 Univ of Cal Santa Cruz | 26,347 | 23,651 | 22,163 | 22,222 | 17,818 | 17,400 | 14,509 | 12,867 |
| 135 University of Oregon | 26,346 | 22,476 | 18,567 | 16,815 | 16,202 | 14,445 | 13,423 | 11,985 |
| 136 Rice University | 26,267 | 21,563 | 18,851 | 17,298 | 15,747 | 14,196 | 12,751 | 11,306 |
| 137 Univ of New Hampshire | 25,994 | 23,720 | 22,095 | 19,701 | 18,263 | 18,772 | 16,116 | 13,954 |
| 138 Southern Ill U-Carbondale | 25,873 | 23,357 | 20,310 | 18,654 | 18,814 | 18,371 | 15,581 | 10,474 |
| 139 Univ of Maine Orono | 23,605 | 19,974 | 17,341 | 16,952 | 19,315 | 20,621 | 17,107 | 19,454 |
| 140 Med Univ of So Carolina | 23,128 | 23,017 | 20,949 | 19,658 | 19,278 | 13,677 | 11,796 | 10,347 |
| Total, 1st 140 insts. | 14,865,314 | 13,673,794 | 12,265,784 | 11,063,922 | 9,960,300 | 8,859,789 | 7,883,972 | 7,198,998 |
| 141 N Mex Inst Mining & Tech | 22,911 | 22,289 | 20,357 | 23,709 | 16,796 | 13,209 | 9,622 | 8,685 |
| 142 SUNY Hlth Sci Ctr - Brkln | 22,873 | 20,523 | 18,374 | 17,008 | 15,557 | 14,107 | 12,657 | 13,072 |
| 143 University of Wyoming | 22,831 | 23,310 | 20,429 | 17,316 | 18,663 | 16,075 | 15,735 | 15,119 |
| 144 San Diego State Univ | 22,524 | 20,124 | 19,370 | 16,973 | 9,958 | 8,043 | 6,256 | 7,202 |
| 145 University of Mississippi | 22,071 | 17,092 | 15,125 | 13,377 | 12,970 | 9,484 | 9,516 | 10,687 |
| 146 SUNY at Albany | 22,034 | 24,240 | 19,625 | 18,815 | 16,433 | 13,016 | 11,421 | 10,442 |
| 147 The University of Alabama | 21,488 | 18,395 | 15,836 | 13,362 | 11,221 | 7,799 | 5,894 | 3,990 |
| 148 Univ of Nevada - Reno | 21,449 | 18,141 | 17,867 | 15,171 | 13,114 | 11,057 | 9,000 | 13,969 |
| 149 Rush University | 21,284 | 21,741 | 19,827 | 16,342 | 13,969 | 11,293 | 11,788 | 12,122 |
| 150 Drexel University | 20,079 | 17,983 | 16,045 | 15,803 | 14,247 | 11,817 | 7,897 | 5,896 |
| Total, 1st 150 insts. | 15,084,858 | 13,877,632 | 12,448,639 | 11,231,798 | 10,103,228 | 8,975,689 | 7,983,758 | 7,300,182 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at
universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 4 of 10

| Institution ranking | Total | | | | | | | |
|-------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 151 University of Notre Dame | 19,373 | 19,385 | 17,845 | 14,409 | 13,581 | 13,906 | 12,675 | 12,793 |
| 152 SUNY Col of Env Sci & For | 18,671 | 17,221 | 12,917 | 11,690 | 11,249 | 10,808 | 9,585 | 8,363 |
| 153 The Medical Col of Penna | 18,643 | 20,542 | 15,277 | 11,081 | 9,775 | 8,469 | 7,163 | 4,377 |
| 154 U of Neb Med Ctr at Omaha | 17,844 | 17,291 | 14,684 | 12,492 | 11,759 | 10,262 | 8,501 | 6,728 |
| 155 University of N Dakota | 17,498 | 17,518 | 15,806 | 16,404 | 14,303 | 12,202 | 10,101 | 8,000 |
| 156 US Naval Postgrad School | 17,391 | 15,306 | 15,515 | 13,053 | 13,216 | 12,212 | 10,986 | 9,761 |
| 157 Howard University | 17,382 | 17,125 | 16,870 | 16,615 | 16,305 | 12,798 | 13,034 | 10,959 |
| 158 St Louis University | 17,157 | 14,251 | 9,700 | 9,190 | 8,684 | 8,178 | 7,672 | 7,166 |
| 159 Desert Research Institute | 16,852 | 16,005 | 14,798 | 12,899 | 11,421 | 9,442 | 8,513 | 7,535 |
| 160 Michigan Tech University | 16,037 | 15,186 | 14,321 | 12,656 | 12,386 | 11,649 | 11,225 | 10,012 |
| Total, 1st 160 insts. | 15,261,706 | 14,047,462 | 12,596,372 | 11,362,287 | 10,225,907 | 9,085,615 | 8,083,213 | 7,385,876 |
| 161 University of Louisville | 15,921 | 14,466 | 22,945 | 22,966 | 14,782 | 6,403 | 7,589 | 8,669 |
| 162 Florida A & M University | 15,847 | 14,171 | 12,079 | 9,364 | 8,401 | 7,439 | 9,784 | 6,929 |
| 163 U of MD Center For EES | 15,652 | 13,741 | 12,682 | 12,029 | 9,742 | 4,319 | 3,244 | 3,070 |
| 164 Univ of Wis-Milwaukee | 15,639 | 13,428 | 12,424 | 11,079 | 10,383 | 9,068 | 8,499 | 7,851 |
| 165 N J Inst of Technology | 15,225 | 11,402 | 8,327 | 10,418 | 8,579 | 4,094 | 2,168 | 1,843 |
| 166 Northeastern University | 14,347 | 13,302 | 11,894 | 10,124 | 9,243 | 8,883 | 8,217 | 7,553 |
| 167 Univ of Missouri Rolla | 14,285 | 17,692 | 18,823 | 14,712 | 14,027 | 10,392 | 9,445 | 8,214 |
| 168 Southern Methodist Univ | 13,600 | 9,363 | 6,814 | 4,938 | 4,459 | 3,981 | 3,491 | 2,822 |
| 169 Hahnemann University | 13,595 | 11,158 | 8,551 | 9,062 | 10,694 | 12,810 | 8,970 | 7,031 |
| 170 Wright State University | 13,451 | 11,043 | 9,551 | 7,260 | 9,374 | 8,263 | 7,414 | 6,086 |
| Total, 1st 170 insts. | 15,409,268 | 14,177,228 | 12,720,462 | 11,474,239 | 10,325,591 | 9,161,267 | 8,152,034 | 7,445,944 |
| 171 New York Medical College | 13,244 | 12,958 | 13,817 | 11,794 | 9,327 | 7,837 | 5,779 | 8,260 |
| 172 Ohio University | 12,982 | 11,461 | 10,863 | 8,548 | 8,091 | 5,811 | 4,745 | 4,848 |
| 173 CUNY City College | 12,973 | 11,724 | 10,392 | 9,079 | 8,393 | 7,707 | 6,919 | 5,722 |
| 174 North Dakota State Univ | 12,468 | 10,433 | 8,638 | 19,508 | 17,537 | 17,447 | 17,358 | 17,269 |
| 175 Loyola Univ - Chicago | 12,260 | 11,303 | 8,327 | 7,123 | 6,375 | 5,364 | 5,035 | 4,775 |
| 176 Univ of Texas at Dallas | 12,075 | 11,265 | 10,936 | 10,677 | 7,947 | 7,352 | 6,972 | 6,643 |
| 177 Memphis State University | 12,073 | 9,892 | 8,201 | 7,132 | 5,315 | 4,072 | 1,887 | 1,370 |
| 178 Medical Col of Georgia | 12,052 | 11,363 | 9,925 | 10,053 | 9,323 | 8,008 | 6,923 | 6,822 |
| 179 U of Arkansas Med Sci Cam | 11,898 | 10,834 | 9,851 | 8,094 | 6,813 | 5,515 | 4,691 | 3,407 |
| 180 Brigham Young University | 11,608 | 11,544 | 10,967 | 11,341 | 10,086 | 8,832 | 7,639 | 5,260 |
| Total, 1st 180 insts. | 15,532,901 | 14,290,005 | 12,822,379 | 11,577,588 | 10,414,798 | 9,239,212 | 8,219,982 | 7,512,320 |
| 181 University of Lowell | 11,291 | 11,242 | 10,903 | 8,364 | 8,453 | 5,940 | 3,980 | 3,543 |
| 182 Univ of South Alabama | 11,105 | 10,503 | 8,578 | 7,668 | 7,574 | 7,477 | 6,022 | 4,912 |
| 183 Colorado School of Mines | 10,943 | 9,364 | 8,832 | 8,515 | 7,807 | 6,349 | 5,540 | 5,374 |
| 184 Polytechnic University | 10,919 | 11,345 | 9,378 | 9,400 | 7,779 | 6,441 | 6,040 | 5,276 |
| 185 SUNY at Binghamton | 10,680 | 9,270 | 8,926 | 8,541 | 8,322 | 7,101 | 6,112 | 6,441 |
| 186 Old Dominion U Res Fdn | 10,579 | 9,107 | 7,252 | 6,572 | 5,934 | 5,296 | 4,658 | 4,035 |
| 187 Eastern VA Medical School | 10,496 | 8,125 | 6,614 | 4,320 | 3,441 | 2,562 | 1,683 | 804 |
| 188 University of Akron | 10,372 | 9,728 | 7,114 | 7,190 | 5,360 | 3,596 | 3,245 | 1,808 |
| 189 University of Denver | 10,102 | 8,938 | 10,038 | 12,239 | 13,957 | 14,801 | 15,645 | 16,489 |
| 190 San Jose State University | 10,086 | 9,488 | 10,104 | 9,351 | 8,598 | 7,845 | 7,092 | 6,339 |
| Total, 1st 190 insts. | 15,639,474 | 14,387,115 | 12,910,118 | 11,659,748 | 10,492,023 | 9,306,620 | 8,279,999 | 7,567,341 |
| 191 Univ of North Texas | 9,741 | 9,121 | 7,038 | 5,724 | 4,789 | 3,865 | 5,251 | 5,674 |
| 192 Tenn Technological Univ | 9,631 | 7,539 | 7,483 | 6,970 | 4,883 | 2,796 | 1,425 | 1,321 |
| 193 College of William & Mary | 9,572 | 7,633 | 8,031 | 6,694 | 5,923 | 10,788 | 5,873 | 2,621 |
| 194 South Dakota State Univ | 9,511 | 8,472 | 8,622 | 8,279 | 7,882 | 6,286 | 5,790 | 7,764 |
| 195 Albany Med Ctr Grad Sch | 9,431 | 9,827 | 11,694 | 13,287 | 12,869 | 12,451 | 12,033 | 11,615 |
| 196 Oregon Grad Inst Sci/Tech | 9,262 | 8,825 | 8,470 | 6,926 | 6,109 | 5,294 | 4,479 | 3,931 |
| 197 Georgia State University | 8,942 | 7,000 | 5,843 | 5,258 | 2,900 | 1,973 | 2,177 | 1,906 |
| 198 Northern Illinois Univ | 8,930 | 7,304 | 5,905 | 4,899 | 5,042 | 4,785 | 4,528 | 4,271 |
| 199 Creighton University | 8,929 | 7,934 | 7,650 | 5,910 | 4,171 | 2,432 | 2,267 | 2,316 |
| 200 Cleveland State Univ | 8,699 | 7,570 | 7,334 | 6,897 | 4,528 | 3,788 | 2,547 | 2,361 |
| Total, 1st 200 insts. | 15,732,122 | 14,468,340 | 12,988,188 | 11,730,592 | 10,551,119 | 9,361,078 | 8,326,369 | 7,611,121 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table 8-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 5 of 10

| Institution ranking | Total | | | | | | | |
|--------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 201 NC Ag & Tech State Univ | 8,657 | 6,706 | 6,401 | 4,461 | 5,754 | 4,938 | 4,689 | 4,745 |
| 202 Clarkson University | 8,392 | 7,523 | 7,804 | 7,442 | 6,975 | 4,612 | 3,850 | 4,015 |
| 203 Univ of Southwestern LA | 8,319 | 6,817 | 5,092 | 5,017 | 4,695 | 4,374 | 2,597 | 821 |
| 204 Univ of Missouri Kan City | 8,310 | 7,926 | 7,630 | 4,790 | 3,837 | 2,444 | 1,761 | 1,497 |
| 205 Boston College | 8,052 | 6,152 | 6,137 | 5,099 | 4,926 | 4,754 | 4,941 | 5,127 |
| 206 George Mason University | 8,011 | 4,220 | 3,834 | 2,368E | 1,755 | 1,143 | 531 | 467 |
| 207 Loma Linda University | 7,547 | 5,248 | 6,496 | 7,469 | 5,959 | 4,450 | 3,794 | 3,139 |
| 208 Catholic Univ of America | 7,398 | 6,554 | 5,759 | 5,268 | 3,964 | 4,326 | 3,706 | 2,899 |
| 209 University of Montana | 7,332 | 6,482 | 6,842 | 6,332 | 5,478 | 4,624E | 4,340 | 4,056 |
| 210 Kent State University | 7,172 | 5,534 | 5,086 | 4,573 | 3,662 | 3,855 | 3,057 | 2,347 |
| Total, 1st 210 insts. | 15,811,312 | 14,531,502 | 13,049,269 | 11,783,411 | 10,598,124 | 9,400,598 | 8,359,635 | 7,640,234 |
| 211 Med Col of Ohio at Toledo | 7,159 | 6,809 | 5,475 | 7,652 | 7,267 | 6,886 | 6,505 | 6,124 |
| 212 Alabama A & M University | 7,010 | 6,272 | 6,140 | 4,534 | 3,986 | 3,439 | 2,892 | 2,057 |
| 213 Florida Inst of Tech | 7,003 | 3,531 | 2,505 | 1,918 | 1,886 | 2,091 | 1,764 | 1,520 |
| 214 CUNY Hunter College | 6,928 | 6,326 | 6,437 | 6,943 | 5,858 | 3,859 | 3,172 | 3,631 |
| 215 Univ of Texas at El Paso | 6,889 | 4,168 | 2,641 | 2,605 | 1,933 | 1,475 | 1,407 | 1,407 |
| 216 Illinois Inst of Tech | 6,793 | 6,864 | 7,345 | 8,470 | 5,715 | 5,963 | 5,479 | 4,762 |
| 217 Meharry Medical College | 6,663 | 6,564 | 5,228 | 4,797 | 4,137 | 3,477 | 2,817 | 2,157 |
| 218 Univ of P R-Med Sci Campus | 6,293 | 6,528 | 5,517 | 6,893 | 6,397 | 5,901 | 5,405 | 4,909 |
| 219 Stevens Institute of Tech | 6,146 | 4,973 | 6,426 | 8,915 | 7,660 | 6,407 | 5,154 | 4,686 |
| 220 East Carolina University | 6,098 | 5,241 | 4,679 | 3,771 | 3,858 | 3,095 | 2,333 | 2,009 |
| Total, 1st 220 insts. | 15,878,294 | 14,588,978 | 13,101,882 | 11,839,909 | 10,646,821 | 9,443,191 | 8,396,563 | 7,673,496 |
| 221 Northern Arizona Univ | 5,902 | 5,368 | 4,204 | 3,774 | 2,308 | 2,117 | 1,824 | 1,174 |
| 222 Morehouse School of Med | 5,891 | 4,320 | 2,222 | 01 | 01 | 01 | 01 | 01 |
| 223 Inst Paper Sci and Tech | 5,761 | 6,231 | 5,782 | 5,777 | 5,208 | 4,721 | 4,627 | 5,209 |
| 224 Univ of Tex at Arlington | 5,729 | 7,064 | 7,670 | 5,760 | 4,950 | 3,160 | 2,314 | 1,814 |
| 225 University of Toledo | 5,551 | 4,599 | 3,843 | 2,950 | 2,058 | 1,790 | 1,686 | 1,047 |
| 226 Union College (NY) | 5,459 | 5,193 | 5,144 | 5,534 | 1,926 | 318 | 330 | 230 |
| 227 U of MD Baltimore County | 5,385 | 4,342 | 3,975 | 3,222 | 2,887 | 2,755 | 2,083 | 2,109 |
| 228 Univ of P R-Rio Piedras | 5,374 | 4,017 | 4,741 | 4,175 | 3,904 | 3,633 | 3,362 | 3,091 |
| 229 Tuskegee University | 5,089 | 5,348 | 3,752 | 2,752 | 1,787 | 822 | 910 | 998E |
| 230 Florida Atlantic Univ | 4,985 | 3,469 | 3,045 | 2,665 | 2,059 | 1,105E | 1,005 | 893 |
| Total, 1st 230 insts. | 15,933,420 | 14,638,929 | 13,146,260 | 11,874,518 | 10,673,908 | 9,463,612 | 8,414,704 | 7,690,061 |
| 231 U of the Virgin Islands | 4,883E | 4,734 | 4,666 | 2,386E | 1,760 | 1,312 | 1,231 | 1,107 |
| 232 Southern U & A&M College | 4,856 | 3,967 | 3,451 | 2,196 | 2,845 | 3,191 | 3,068 | 2,401 |
| 233 U Hlth Sci/Chgo Med Sch | 4,695 | 4,535 | 4,369 | 3,866 | 3,677 | 3,479 | 3,267 | 3,057 |
| 234 Worcester Poly Institute | 4,683 | 4,208 | 3,814 | 3,562 | 3,708 | 3,853 | 3,998 | 4,143 |
| 235 Univ of Sthn Mississippi | 4,666 | 4,413 | 3,517 | 3,840 | 2,440 | 1,758 | 1,445 | 1,133 |
| 236 Mercer University | 4,656 | 3,043 | 931 | 620 | 428 | 251 | 270 | 288 |
| 237 University of Tulsa | 4,325 | 3,329 | 3,333 | 2,852 | 2,371 | 1,890 | 1,829 | 1,434 |
| 238 American University | 4,127 | 3,765 | 3,917 | 3,286 | 2,720 | 2,156 | 1,592 | 1,028 |
| 239 Oakland University | 4,102 | 4,673 | 3,132 | 4,500 | 4,016 | 3,535 | 3,054 | 2,573 |
| 240 Alfred University | 4,067 | 3,874 | 3,829 | 2,591 | 1,929 | 1,501 | 951 | 1,088 |
| Total, 1st 240 insts. | 15,978,480 | 14,679,470 | 13,181,219 | 11,904,217 | 10,699,802 | 9,486,538 | 8,435,409 | 7,708,313 |
| 241 Wesleyan University | 4,021 | 3,943 | 3,111 | 3,397 | 2,456 | 2,750 | 3,965 | 5,179E |
| 242 Central State University | 3,976 | 673 | NA | NA | NA | NA | NA | NA |
| 243 Western Michigan Univ | 3,920 | 2,934 | 1,949 | 1,267 | 1,600 | 822 | 450 | 386E |
| 244 Louisiana Tech University | 3,894 | 3,930 | 2,828 | 2,775 | 2,610 | 2,445 | 2,280 | 2,115 |
| 245 CUNY Grad Sch & Univ Ctr | 3,858 | 3,069 | 2,189 | 2,336 | 2,569 | 1,363 | 967 | 1,520 |
| 246 Portland State University | 3,834 | 3,374 | 2,810 | 2,737 | 2,298 | 1,859 | 1,595 | 1,759 |
| 247 Jackson State University | 3,762 | 3,747 | 3,403 | 2,260 | 2,076 | 1,896 | 1,716 | 1,536 |
| 248 Prairie View A & M Univ | 3,521 | 3,680 | 1,741E | 1,498 | 2,015 | 2,531 | 3,047 | 3,563 |
| 249 Bowling Green State Univ | 3,400 | 3,353 | 3,142 | 2,439 | 2,018 | 1,763 | 1,582 | 1,717 |
| 250 Tennessee State Univ | 3,300 | 3,442 | 3,408 | 2,719 | 2,661 | 2,422E | 2,182 | 1,804E |
| Total, 1st 250 insts. | 16,015,966 | 14,711,615 | 13,205,829 | 11,925,645 | 10,720,105 | 9,504,389 | 8,453,193 | 7,727,892 |

See explanatory information, if any, and SOURCE(S) at end of table.

16

Table 8-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 6 of 10

| Institution ranking | Total | | | | | | | |
|-------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 251 Marquette University | 3,262 | 2,454 | 2,411 | 1,621 | 1,559 | 1,749 | 1,518 | 1,379 |
| 252 Virginia State University | 2,258 | 2,620 | 2,476 | 2,356 | 2,236 | 2,116 | 2,293 | 2,153 |
| 253 Wichita State University | 3,196 | 3,443 | 4,758 | 2,741 | 2,018 | 1,890 | 1,558 | 1,162 |
| 254 Fairleigh Dickinson Univ | 3,183 | 3,356 | 4,196 | 3,210 | 2,276 | 1,680 | 1,834 | 1,514 |
| 255 Univ of N C at Charlotte | 3,152 | 2,014 | 2,085 | 1,870 | 1,656 | 1,442 | 1,228 | 1,014 |
| 256 Cal Poly St U San Luis Ob | 3,118 | 3,182 | 1,795 | 1,615 | 1,437 | 1,259 | 1,081 | 903 |
| 257 Chas R Drew U of Med & Sc | 3,098 | 2,898 | 2,826 | 2,913 | 1,942 | 971 | 0 | 0 |
| 258 New York Inst Technology | 3,087 | 3,998 | 5,678 | 6,093 | 4,838 | 3,584 | 3,472 | 2,737 |
| 259 S Dak Sch Mines & Tech | 3,000 | 2,596 | 2,418 | 1,916 | 1,978 | 1,847 | 1,796 | 1,748 |
| 260 Univ of Missouri Sys Off | 2,991 | 9,500 | 8,734 | 9,512 | 8,735 | 6,730 | 6,027 | 3,661 |
| Total, 1st 260 insts. | 16,047,311 | 14,747,676 | 13,243,206 | 11,959,492 | 10,748,780 | 9,527,657 | 8,474,000 | 7,744,163 |
| 261 Illinois State University | 2,951 | 2,559 | 2,578 | 2,296 | 1,758 | 1,652 | 1,549 | 1,446 |
| 262 Kentucky State University | 2,856 | 1,721 | 1,697 | 1,856 | 1,656 | 1,456 | 1,256 | 1,151 |
| 263 Lincoln University | 2,771 | 2,901 | NA | NA | NA | NA | NA | NA |
| 264 Texas Col of Osteo Med | 2,767 | 4,630 | 4,461 | 3,560 | 3,247 | 2,968 | 2,689 | 2,410 |
| 265 South Carolina St College | 2,593 | 1,694 | 796 | 878 | 955 | 1,032 | 1,109 | 1,186 |
| 266 University of D C | 2,569 | 2,271 | 1,973 | 1,485 | 2,371 | 2,172 | 1,362 | 910 |
| 267 Texas A & I University | 2,558 | 2,941 | 2,470 | 2,288 | 2,109 | 1,930 | 1,751 | 1,572 |
| 268 CUNY Queens College | 2,551 | 2,301 | 2,204 | 2,086 | 1,971 | 1,856 | 1,741 | 1,626 |
| 269 Fordham University | 2,501 | 2,648 | 2,386 | 2,190 | 1,850 | 1,511 | 1,172 | 1,211 |
| 270 Fort Valley State Univ. | 2,313 | 2,173 | NA | NA | NA | NA | NA | NA |
| Total, 1st 270 insts. | 16,073,741 | 14,772,515 | 13,261,771 | 11,976,131 | 10,764,697 | 9,542,234 | 8,486,629 | 7,755,675 |
| 271 Hampton University | 2,307 | 2,168 | NA | NA | NA | NA | NA | NA |
| 272 Univ of Missouri St Louis | 2,291 | 2,439 | 2,218 | 1,824 | 1,950 | 1,527 | 1,433 | 1,013 |
| 273 Miami University (Ohio) | 2,203 | 2,364 | 2,194 | 2,024 | 1,854 | 1,684 | 1,514 | 1,243 |
| 274 Air Force Inst of Tech/Nr | 2,200 | 1,800 | 1,400 | 456 | 370 | 285 | 146 | 130 |
| 275 Lamar University | 2,121 | 779 | 202 | 417 | 330 | 199 | 198 | 370 |
| 276 Alcorn State University | 1,935 | 1,850 | 1,692 | 1,623 | 1,554 | 1,485 | 1,359 | 1,237 |
| 277 OSU College of Osteo Med | 1,935 | 1,133 | 1,278 | 1,222 | 1,001 | 850 | 701 | 552 |
| 278 Institute of Textile Tech | 1,921 | 1,311 | 1,678 | 1,238 | 1,172 | 1,109 | 1,046 | 983 |
| 279 East Tennessee State Univ | 1,902 | 1,629 | 1,163 | 1,258 | 1,136 | 1,015 | 691 | 809 |
| 280 Xavier University of LA | 1,902 | 1,294 | NA | NA | NA | NA | NA | NA |
| Total, 1st 280 insts. | 16,094,458 | 14,789,282 | 13,273,596 | 11,986,193 | 10,774,064 | 9,550,388 | 8,493,717 | 7,762,012 |
| 281 Bryn Mawr College | 1,854 | 895 | 817 | 807 | 565 | 509 | 563 | 554 |
| 282 U of Md Eastern Shore | 1,850 | 2,944 | 1,736 | 1,522 | 1,615 | 1,534 | 1,455 | 1,376 |
| 283 Univ of South Dakota | 1,831 | 1,381 | 1,287 | 1,200 | 1,113 | 1,026 | 939 | 901 |
| 284 Texas Christian Univ | 1,823 | 888 | 737 | 912 | 1,124 | 1,047 | 955 | 1,773 |
| 285 Eastern Washington Univ | 1,811 | 1,615 | 1,333 | 1,384 | 1,098 | 929 | 1,199 | 1,468 |
| 286 Amherst College | 1,792 | 1,357 | 1,549 | 1,400 | 1,254 | 1,108 | 962 | 816 |
| 287 Univ of Wis-Superior | 1,704 | 1,745 | 1,553 | 1,659 | 1,412 | 1,518 | 1,225 | 1,066 |
| 288 Idaho State University | 1,634 | 1,312 | 711 | 709 | 661 | 401 | 394 | 298 |
| 289 Occidental College | 1,627 | 2,011 | 1,535 | 1,482 | 1,431 | 1,380 | 1,329 | 1,278 |
| 290 Nova University | 1,601 | 1,108 | 962 | 873 | 730 | 587 | 702 | 741 |
| Total, 1st 290 insts. | 16,111,985 | 14,804,738 | 13,285,816 | 11,998,141 | 10,785,067 | 9,560,427 | 8,503,440 | 7,772,283 |
| 291 Santa Clara University | 1,569 | 1,396 | 1,355 | 1,094 | 962 | 1,114 | 1,149 | 961 |
| 292 Texas Southern Univ | 1,546 | 1,519 | 1,703 | 1,491 | 1,279 | 1,067 | 322 | 497 |
| 293 University of Detroit | 1,526 | 1,282 | 805 | 798 | 795 | 792 | 789 | 786 |
| 294 Northeast Missouri St U | 1,522 | 1,605 | 772 | 402 | 272 | 142 | 145 | 147 |
| 295 Seton Hall University | 1,515 | 1,471 | 1,290 | 1,171 | 1,058 | 954 | 859 | 791 |
| 296 Wentworth Inst of Tech | 1,435 | 1,383 | 1,457 | 1,431 | 1,405 | 1,379 | 1,353 | 1,327 |
| 297 NE Ohio Univ Med School | 1,409 | 1,616 | 1,956 | 1,349 | 1,020 | 1,062 | 976 | 1,204 |
| 298 Smith College | 1,398 | 1,774 | 1,284 | 1,265 | 1,265 | 1,265 | 1,265 | 1,265 |
| 299 Stephen F Austin St Univ | 1,390 | 1,417 | 791 | 863 | 896 | 928 | 960 | 671 |
| 300 Villanova University | 1,390 | 1,440 | 696 | 755 | 547 | 339 | 304 | 386 |
| Total, 1st 300 insts. | 16,126,685 | 14,819,587 | 13,297,905 | 12,008,760 | 10,794,566 | 9,569,469 | 8,511,562 | 7,780,318 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table 8-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 7 of 10

| Institution ranking | Total | | | | | | | |
|---------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 301 Cal Sch Prof Psych-Fresno | 1,382 | 1,922 | 1,015 | 535 | 2,671 | 0 | 0 | 0 |
| 302 Univ of West Florida | 1,358 | 1,619 | 1,313 | 2,099 | 2,882 | 3,665 | 4,448 | 5,231 |
| 303 CUNY Col Staten Island | 1,351 | 1,171 | 867 | 788 | 712 | 636 | 560 | 484 |
| 304 Texas Woman's University | 1,336 | 969 | 825 | 709 | 740 | 1,112 | 992 | 1,041 |
| 305 Calif St Poly Univ Pomona | 1,320 | 1,314 | 1,626 | 1,340 | 1,058 | 776 | 494 | 212 |
| 306 Cal Sch Prof Psych-L A | 1,316 | 1,551 | 616 | 500 | 500 | 0 | 0 | 0 |
| 307 Clark University | 1,281 | 1,256 | 1,111 | 1,058 | 1,335 | 1,611 | 1,887 | 2,163 |
| 308 Marshall University | 1,270 | 1,679 | 1,526 | 938 | 837 | 856 | 798 | 611 |
| 309 SUNY College Plattsburgh | 1,254 | 1,030 | 1,164 | 922 | 1,075 | 341 | 183 | 0 |
| 310 Langston University | 1,200 | 2,349 | NA | NA | NA | NA | NA | NA |
| Total, 1st 310 insts. | 16,139,753 | 14,834,447 | 13,307,968 | 12,017,649 | 10,803,972 | 9,578,466 | 8,520,924 | 7,790,060 |
| 311 Univ of Ark Pine Bluff | 1,188 | 1,148 | 1,199 | 1,047 | 1,010 | 1,002 | 885 | 1,500 |
| 312 Pomona College | 1,179 | 1,264 | 536 | 600 | 662 | 724 | 786 | 1,848 |
| 313 Albany State College | 1,173 | 1,725 | 366 | 263 | 207 | 152 | 97 | 133 |
| 314 Chicago Col of Osteo Med | 1,161 | 1,651 | 2,252 | 1,772 | 1,268 | 1,188 | 916 | 1,010 |
| 315 Fisk University | 1,156 | 1,157 | 1,741 | 862 | 732 | 604 | 476 | 348 |
| 316 Univ of N C at Greensboro | 1,154 | 823 | 455 | 495 | 386 | 604 | 509 | 470 |
| 317 Phila Col of Pharm & Sci | 1,153 | 778 | 405 | 342 | 425 | 302 | 314 | 254 |
| 318 CUNY Bernard Baruch Col | 1,150 | 646 | 194 | 234 | 266 | 298 | 330 | 362 |
| 319 Baylor University | 1,143 | 1,841 | 934 | 931 | 870 | 810 | 750 | 690 |
| 320 Central Michigan Univ | 1,071 | 866 | 1,025 | 1,164 | 669 | 268 | 326 | 196 |
| Total, 1st 320 insts. | 16,151,281 | 14,846,346 | 13,317,075 | 12,025,359 | 10,810,467 | 9,584,418 | 8,526,313 | 7,795,871 |
| 321 Tougaloo College | 1,028 | 1,191 | NA | NA | NA | NA | NA | NA |
| 322 Delaware State College | 1,027 | 1,027 | NA | NA | NA | NA | NA | NA |
| 323 New Sch For Soc Research | 1,026 | 1,000 | 1,282 | 585 | 425 | 266 | 107 | 100 |
| 324 Coppin State College | 1,017 | 834 | NA | NA | NA | NA | NA | NA |
| 325 Univ of Nebraska at Omaha | 1,002 | 410 | 235 | 186 | 151 | 109 | 113 | 112 |
| 326 De Paul University | 972 | 905 | 576 | 617 | 376 | 135 | 132 | 99 |
| 327 Ponce School of Medicine | 943 | 856 | 663 | 657 | 715 | 11 | 10 | 0 |
| 328 Indiana State University | 903 | 967 | 949 | 541 | 782 | 690 | 598 | 506 |
| 329 University of the Pacific | 897 | 990 | 968 | 951 | 934 | 917 | 900 | 883 |
| 330 Morehouse College | 868 | 1,093 | NA | NA | NA | NA | NA | NA |
| Total, 1st 330 insts. | 16,160,964 | 14,855,619 | 13,321,748 | 12,028,896 | 10,813,850 | 9,586,546 | 8,528,173 | 7,797,571 |
| 331 Ball State University | 850 | 798 | 696 | 664 | 725 | 725 | 598 | 531 |
| 332 Baylor Col of Dentistry | 849 | 788 | 692 | 598 | 629 | 414 | 1,150 | 228 |
| 333 Lincoln University (PA) | 845 | 768 | 867 | 648 | 432 | 216 | 0 | 0 |
| 334 SUNY College Brockport | 833 | 357 | 219 | 205 | 195 | 185 | 175 | 165 |
| 335 SUNY College Buffalo | 832 | 863 | 893 | 923 | 953 | 983 | 1,013 | 1,043 |
| 336 Norfolk State University | 826 | 652 | 425 | 304 | 456 | 588 | 584 | 583 |
| 337 CUNY York College | 816 | 826 | 723 | 659 | 779 | 699 | 560 | 583 |
| 338 Columbia U Teachers Col | 803 | 581 | 900 | 765 | 644 | 525 | 406 | 287 |
| 339 Univ of Wis-Parkside | 798 | 883 | 704 | 659 | 614 | 569 | 524 | 479 |
| 340 Univ of Wis-La Crosse | 795 | 531 | 309 | 347 | 338 | 534 | 440 | 426 |
| Total, 1st 340 insts. | 16,169,211 | 14,862,666 | 13,328,176 | 12,034,668 | 10,819,615 | 9,592,184 | 8,533,623 | 7,801,896 |
| 341 Selma University | 790 | 816 | NA | NA | NA | NA | NA | NA |
| 342 St John's University (NY) | 759 | 632 | 814 | 769 | 726 | 683 | 366 | 257 |
| 343 Arkansas State University | 755 | 715 | 432 | 422 | 416 | 410 | 404 | 398 |
| 344 Univ of Wis-Stout | 755 | 635 | 464 | 379 | 297 | 215 | 133 | 51 |
| 345 Northeast Louisiana Univ | 667 | 439 | 386 | 308 | 315 | 235 | 184 | 167 |
| 346 Morgan State University | 657 | 649 | 742 | 635 | 886 | 775 | 665 | 555 |
| 347 Barnard College | 653 | 717 | 677 | 670 | 667 | 664 | 661 | 658 |
| 348 Morris Brown College | 647 | 164 | NA | NA | NA | NA | NA | NA |
| 349 Adelphi University | 633 | 592 | 466 | 341 | 317 | 296 | 275 | 254 |
| 350 U Ctr of Del Caribe Esc Med | 620 | 682 | 540 | 577 | 819 | 175 | 0 | 0 |
| Total, 1st 350 insts. | 16,176,147 | 14,868,707 | 13,332,697 | 12,038,769 | 10,824,058 | 9,595,637 | 8,536,311 | 7,804,236 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 8 of 10

| Institution, ranking | Total | | | | | | | |
|-------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 351 Canisius College | 619 | 209 | 309 | 289I | 270I | 251I | 232I | 213 |
| 352 Claremont Univ Ctr & Grad | 583 | 746 | 1,353 | 1,367 | 1,280I | 1,193I | 1,106I | 1,019I |
| 353 Pacific Lutheran Univ | 577 | 44 | 70 | 75I | 77I | 79I | 81I | 83I |
| 354 Grand Valley State Univ | 570 | 465 | 576 | 484I | 392I | 300I | 208I | 116 |
| 355 Duquesne University | 558 | 357 | 357 | 357 | 380I | 400I | 420I | 440I |
| 356 Bethune Cookman College | 554 | 440 | NA | NA | NA | NA | NA | NA |
| 357 Southern Univ-New Orleans | 553I | 500 | NA | NA | NA | NA | NA | NA |
| 358 Kirksville Col Osteo Med | 539 | 727 | 791I | 855 | 769I | 689I | 609I | 529I |
| 359 West Texas State Univ | 533 | 597 | 470 | 677 | 524 | 617 | 504 | 473I |
| 360 Winston-Salem State Univ | 532 | 650 | NA | NA | NA | NA | NA | NA |
| Total, 1st 360 insts. | 16,181,765 | 14,873,442 | 13,336,623 | 12,042,873 | 10,827,750 | 9,599,166 | 8,539,471 | 7,807,109 |
| 361 Hofstra University | 515 | 366 | 165 | 258 | 278 | 219 | 160 | 146 |
| 362 Milwaukee School of Eng | 508 | 565 | 640 | 614I | 594I | 574I | 554I | 534I |
| 363 Spelman College | 505 | 399 | NA | NA | NA | NA | NA | NA |
| 364 SUNY St Coll of Optometry | 483 | 494 | 375 | 518 | 448I | 381I | 314I | 247 |
| 365 Johnson C. Smith Univ | 477 | 480 | NA | NA | NA | NA | NA | NA |
| 366 Univ of Wis-Green Bay | 449 | 616 | 376 | 402I | 425I | 448I | 471I | 494 |
| 367 Univ of Wis-Stevens Point | 449 | 432 | 362 | 380I | 394I | 408I | 422I | 436 |
| 368 East Stroudsburg U of PA | 440 | 447 | 486 | 414I | 347I | 280I | 213I | 146I |
| 369 Univ of Wis-Eau Claire | 430 | 544 | 369 | 324I | 281I | 238I | 195I | 152 |
| 370 Bennett College | 425 | 364 | NA | NA | NA | NA | NA | NA |
| Total, 1st 370 insts. | 16,186,446 | 14,878,149 | 13,339,396 | 12,045,783 | 10,830,517 | 9,601,714 | 8,541,800 | 7,809,264 |
| 371 Alabama State University | 423 | 456 | NA | NA | NA | NA | NA | NA |
| 372 Knox College | 410 | 382 | 292 | 250I | 212I | 174I | 136I | 98 |
| 373 Grambling State Univ | 409 | 106 | 64 | 136 | 137I | 137I | 137I | 137I |
| 374 Andrews University | 394 | 200 | 190E | 160I | 130I | 100I | 70I | 40 |
| 375 SUNY College New Paltz | 387 | 107 | 36 | 220 | 198I | 178I | 158I | 138 |
| 376 Sam Houston State Univ | 380 | 219 | 206 | 320 | 390 | 264 | 311 | 229 |
| 377 University of Portland | 370 | 462 | 598 | 481I | 365I | 249I | 133I | 17 |
| 378 Univ of Northern Iowa | 357 | 156 | 95 | 78I | 62I | 46I | 30I | 14 |
| 379 Phila Col Osteopathic Med | 340 | 512 | 381 | 344 | 233 | 116I | 0 | 0 |
| 380 SUNY College Fredonia | 323 | 302I | 282 | 277I | 272I | 267I | 262I | 257 |
| Total, 1st 380 insts. | 16,190,239 | 14,881,051 | 13,341,540 | 12,048,049 | 10,832,516 | 9,603,245 | 8,543,037 | 7,810,194 |
| 381 SUNY College Geneseo | 316 | 188 | 218 | 179I | 142I | 105I | 68I | 31 |
| 382 Abilene Christian Univ | 312 | 353 | 334 | 295I | 260I | 225I | 190I | 155 |
| 383 Univ of Wis-Oshkosh | 312 | 217 | 166 | 145I | 127I | 109I | 91I | 73 |
| 384 Tarleton State University | 309 | 38 | 44 | 44 | 53I | 61I | 69 | 73 |
| 385 Sul Ross State University | 301 | 215 | 155 | 141I | 129I | 117I | 105I | 93 |
| 386 Catholic U of PR | 286 | 515 | 443 | 522 | 514I | 507I | 500 | 551 |
| 387 East Texas State Univ | 279 | 401 | 269 | 429 | 408 | 276 | 181 | 103 |
| 388 SUNY College Cortland | 254 | 168 | 151 | 127I | 104I | 81I | 58I | 35 |
| 389 Oakwood College | 226 | 0 | NA | NA | NA | NA | NA | NA |
| 390 Univ of Northern Colorado | 223 | 182 | 33 | 50 | 61 | 48 | 0 | 0 |
| Total, 1st 390 insts. | 16,193,057 | 14,883,328 | 13,343,353 | 12,049,981 | 10,834,314 | 9,604,774 | 8,544,299 | 7,811,308 |
| 391 Savannah State College | 221 | 179 | NA | NA | NA | NA | NA | NA |
| 392 Claflin College | 205 | OE | NA | NA | NA | NA | NA | NA |
| 393 North Carolina Cntrl Univ | 199 | 555E | 571 | 515I | 464I | 413I | 362I | 311I |
| 394 Drake University | 182 | 167 | 163 | 144I | 126I | 108I | 90I | 72 |
| 395 St Olaf College | 172 | 136 | 210 | 216I | 222I | 228I | 234I | 240 |
| 396 Long Island University | 171 | 313 | 572 | 324 | 116 | 132 | 156 | 113 |
| 397 SUNY College Oswego | 160 | 467 | 341 | 334 | 422I | 510 | 282 | 210I |
| 398 Rust College | 156 | 214 | NA | NA | NA | NA | NA | NA |
| 399 Fayetteville State Univ | 154 | 360 | NA | NA | NA | NA | 111I | 124I |
| 400 Colorado College | 151 | 74 | 53 | 72I | 85I | 98I | NA | NA |
| Total, 1st 400 insts. | 16,194,828 | 14,885,793 | 13,345,263 | 12,051,586 | 10,835,749 | 9,606,263 | 8,545,534 | 7,812,378 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at
universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 9 of 10

| Institution ranking | Total | | | | | | | |
|--------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 401 Seattle University | 148 | 241 | 167 | 0 | 101 | 20E | 28 | 351 |
| 402 West Virginia State Col | 146 | 81 | NA | NA | NA | NA | NA | NA |
| 403 Augsburg College | 139 | 115 | 90 | 821 | 751 | 681 | 611 | 541 |
| 404 W VA Schl Osteopathic Med | 134 | 120 | 85 | 90 | 781 | 66 | 200E | 2291 |
| 405 Southern Univ-Shreveport | 131 | 148 | NA | NA | NA | NA | NA | NA |
| 406 Univ of Wis-River Falls | 122 | 142 | 85 | 731 | 651 | 571 | 491 | 41 |
| 407 Philander Smith College | 120 | 165 | NA | NA | NA | NA | NA | NA |
| 408 Kutztown Univ of Penn | 119 | 195 | 360 | 3301 | 3061 | 2821 | 2581 | 2341 |
| 409 Northeastern Ill Univ | 118 | 77 | 37 | 521 | 631 | 741 | 851 | 96 |
| 410 Northwestern St Univ La | 112 | 77 | 7 | 91 | 111 | 131 | 151 | 171 |
| Total, 1st 410 insts. | 16,196,117 | 14,887,154 | 13,346,094 | 12,052,222 | 10,836,357 | 9,606,843 | 8,546,230 | 7,813,084 |
| 411 SUNY College Oneonta | 104 | 77 | 67 | 771 | 861 | 951 | 1041 | 113 |
| 412 Monmouth College (NJ) | 96 | 100 | 0 | 01 | 01 | 01 | 01 | 0 |
| 413 US International Univ | 93 | 224 | 0 | 0 | 0 | 01 | 0 | 0 |
| 414 SUNY College Potsdam | 91 | 145 | 113 | 1441 | 1701 | 1961 | 2221 | 2481 |
| 415 Goucher College | 87 | 78 | 62 | 721 | 821 | 921 | 1021 | 1121 |
| 416 Chapman College | 86 | 81E | 81 | 701 | 601 | 501 | 401 | 301 |
| 417 Univ of Wis-Whitewater | 78 | 134 | 70 | 601 | 531 | 461 | 391 | 32 |
| 418 Montclair State College | 76 | 25 | 36 | 451 | 471 | 491 | 511 | 531 |
| 419 Jaryis Christian College | 75 | 60 | NA | NA | NA | NA | NA | NA |
| 420 Bemidji State University | 74 | 60 | 48 | 401 | 361 | 321 | 281 | 24 |
| Total, 1st 420 insts. | 16,196,977 | 14,888,138 | 13,346,571 | 12,052,730 | 10,836,891 | 9,607,403 | 8,546,816 | 7,813,696 |
| 421 Mass Col Phar/Allied Hlth | 73 | 41 | 901 | 1371 | 1841 | 2311 | 2781 | 325 |
| 422 Univ Osteo Med & Hlth Sci | 67 | 97 | 108 | 20 | 121 | 61 | 0 | 0 |
| 423 Cal Sch Prof Psych-S D | 661 | 62 | 59 | 0 | 01 | 0 | 0 | 0 |
| 424 Knoxville College | 661 | 60 | NA | NA | NA | NA | NA | NA |
| 425 Oral Roberts University | 60 | 1,206 | 2,637 | 2,5191 | 2,4011 | 2,283 | 0 | 0 |
| 426 Xavier University | 60 | 116 | 149 | 2341 | 3181 | 4021 | 4861 | 5701 |
| 427 Southern Oregon St Col | 57 | 89 | 0 | 0 | 0 | 2 | 22 | 65 |
| 428 Fuller Theological Sem | 50 | 60 | 50 | 20 | 12 | 7 | 7E | 6 |
| 429 Miss Valley State Univ | 43 | 14 | 31 | 0 | 01 | 01 | 0 | 0 |
| 430 Bowie State University | 35 | 0 | NA | NA | NA | NA | NA | NA |
| Total, 1st 430 insts. | 16,197,554 | 14,889,883 | 13,349,695 | 12,055,660 | 10,839,818 | 9,610,334 | 8,547,609 | 7,814,662 |
| 431 Trenholm State Tech Col | 30 | 22 | NA | NA | NA | NA | NA | NA |
| 432 Providence College | 25 | 18 | 47 | 37 | 241 | 12 | 23 | 211 |
| 433 Univ of Wis-Platteville | 23 | 47 | 10 | 131 | 131 | 131 | 131 | 13 |
| 434 Elizabeth City State Univ | 15 | 26 | NA | NA | NA | NA | NA | NA |
| 435 Col Osteo Med of Pacific | 9 | 11 | 0 | 0 | 0 | 0 | 0 | 0 |
| 436 Antioch University | 0 | 0 | 0 | 11 | 21 | 31 | 41 | 5E |
| 437 Benedict College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 438 Biola University | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 |
| 439 Cal Sch Prof Psych-Berkly | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 440 Calif St Univ Stanislaus | 0 | 0 | 0 | 4311 | 8621 | 1,2931 | 1,7241 | 2,155 |
| Total, 1st 440 insts. | 16,197,656 | 14,890,020 | 13,349,752 | 12,056,142 | 10,840,719 | 9,611,655 | 8,549,373 | 7,816,856 |
| 441 Cheyney University of PA | 0 | 0E | NA | NA | NA | NA | NA | NA |
| 442 Clark Atlanta University | 01 | 0E | NA | NA | NA | NA | NA | NA |
| 443 Dillard University | 0 | 469 | 0 | 0 | 01 | 01 | 0 | 0 |
| 444 Fielding Institute | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 445 Mayo Grad School of Med | 0 | 0 | 0 | 0 | 01 | 01 | 0 | 0 |
| 446 Paul Quinn College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 447 Rand Grad Inst Pol Studies | 0 | 0 | 0 | 0 | 01 | 0 | 01 | 0 |
| 448 Shaw University | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 449 Slippery Rock Univ of PA | 0 | 0 | 45 | 361 | 271 | 181 | 91 | 0 |
| 450 St Bonaventure University | 0 | 0 | 31 | 6E | 41 | 21 | 0 | 0 |
| Total, 1st 450 insts. | 16,197,656 | 14,890,489 | 13,349,800 | 12,056,184 | 10,840,750 | 9,611,675 | 8,549,382 | 7,816,856 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-32. Total R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 10 of 10

| Institution ranking | Total | | | | | | | |
|------------------------------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 451 St. Louis Community Col | 0 | 0 | 0 | 01 | 01 | 01 | 01 | 0 |
| 452 Stillman College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 453 Talladega College | 0 | 366 | NA | NA | NA | NA | NA | NA |
| 454 The Wright Institute | 0 | 0 | 0 | 0 | 0 | 2951 | 5871 | 8791 |
| 455 U of California System | 0 | 0 | 26,439 | 19,307 | 13,926 | 11,866 | 10,161 | 9,402 |
| 456 Union Institute | 0 | 0 | 0 | 0 | 01 | 01 | 0 | 0 |
| 457 Univ of Health Sciences | 0 | 0 | 58 | 83 | 541 | 271 | 0 | 0 |
| 458 Voorhees College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 459 Wiley College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| Total, 1st 459 insts. | 16,197,656 | 14,890,855 | 13,376,297 | 12,075,574 | 10,854,730 | 9,623,863 | 8,560,130 | 7,827,137 |
| Total, all other sampled insts. | 0 | 0 | 87,571 | 78,675 | 71,497 | 63,099 | 57,052 | 50,120 |
| Estimated total non-sampled insts. | 126,954 | 118,229 | 0 | 0 | 0 | 0 | 0 | 0 |

1/ Includes Applied Physics Laboratory with \$416 million in total R&D expenditures.

2/ Does not include R&D expenditures at university associated federally funded research and development centers. See tables B-73 and B-74.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

63

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 1 of 10

| Institution ranking | Federally financed | | | | | | | |
|----------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| Total, all institutions | 9,611,045 | 8,983,986 | 8,181,246 | 7,333,076 | 6,702,661 | 6,056,519 | 5,423,809 | 4,983,216 |
| 1 Johns Hopkins Univ 1/ | 599,851 | 590,184 | 509,009 | 476,290 | 412,714 | 367,053 | 331,859 | 282,386E |
| 2 Stanford University | 251,446I | 238,650 | 232,572 | 204,386 | 192,076 | 172,423 | 149,520 | 135,172 |
| 3 Mass Inst of Technology | 233,813 | 215,140 | 210,419 | 206,785 | 201,097 | 189,935 | 174,938 | 162,801 |
| 4 University of Washington | 203,353 | 182,453 | 160,261 | 145,184 | 141,973 | 135,830 | 119,785 | 108,512 |
| 5 Univ of Cal San Diego | 182,555 | 171,479 | 159,778 | 142,751 | 128,250 | 115,632 | 115,349 | 123,433 |
| 6 University of Michigan | 180,456 | 174,875 | 160,854 | 137,558 | 118,069 | 106,147 | 99,341 | 84,120 |
| 7 Univ of Wis-Madison | 178,862 | 169,452 | 162,384 | 149,665 | 138,784 | 123,989 | 110,704 | 100,026 |
| 8 Univ of Cal San Francisco | 175,257 | 159,906 | 137,747 | 117,302 | 109,694 | 95,615 | 82,822 | 67,035 |
| 9 Cornell University | 171,249 | 157,984 | 153,662 | 144,604 | 134,660 | 119,319 | 100,767 | 90,185 |
| 10 Univ of Cal Los Angeles | 164,442 | 159,002 | 146,946 | 130,763 | 121,668 | 109,689 | 96,524 | 83,699 |
| Total, 1st 10 insts. | 2,341,284 | 2,219,125 | 2,033,632 | 1,855,288 | 1,694,985 | 1,535,632 | 1,381,609 | 1,237,369 |
| 11 Columbia Univ Main Div | 156,270 | 146,712 | 139,558 | 133,018 | 128,436 | 120,120 | 107,874 | 100,574 |
| 12 Harvard University | 154,090 | 143,451 | 133,003 | 119,955 | 111,503 | 103,556 | 93,430 | 89,824 |
| 13 Yale University | 144,962 | 138,835 | 132,952 | 116,943 | 107,600 | 98,700 | 85,909 | 85,205 |
| 14 University of Minnesota | 143,810 | 132,880 | 119,789 | 109,003 | 100,308 | 87,776 | 79,489 | 79,637 |
| 15 Pennsylvania State Univ | 136,656 | 114,646 | 106,020 | 93,200 | 82,412 | 70,099 | 60,444 | 56,875 |
| 16 Univ of Pennsylvania | 133,747 | 123,810 | 115,080 | 111,185 | 105,925 | 92,893 | 89,831 | 80,516 |
| 17 Univ of Cal Berkeley | 131,717 | 124,371 | 116,565 | 108,828 | 102,578 | 96,779 | 87,653 | 76,917 |
| 18 Univ of Southern Cal | 123,714 | 119,005 | 112,615 | 101,749 | 92,906 | 76,425 | 64,239 | 57,976 |
| 19 Univ of Ill Urbana | 117,170 | 114,398 | 109,633 | 104,420 | 83,996 | 80,536 | 71,182 | 59,806 |
| 20 Univ. of Colorado | 116,394 | 109,145 | 96,041 | 83,144 | 74,887 | 69,359 | 59,080 | 55,028 |
| Total, 1st 20 insts. | 3,699,814 | 3,486,378 | 3,214,888 | 2,936,733 | 2,685,536 | 2,431,875 | 2,180,740 | 1,979,727 |
| 21 Univ of Texas at Austin | 109,593 | 94,311 | 89,982 | 88,395 | 75,152 | 65,029 | 56,482 | 58,231 |
| 22 Duke University | 106,053 | 99,036 | 86,240 | 67,925 | 62,879 | 56,437 | 50,793 | 46,808 |
| 23 Washington University | 105,759 | 96,829 | 88,843 | 77,757 | 68,399 | 61,050 | 57,537 | 54,350 |
| 24 University of Rochester | 105,644 | 101,049 | 92,533 | 80,322 | 75,939 | 64,064 | 55,015 | 48,744 |
| 25 University of Chicago | 96,327 | 90,459 | 80,967 | 75,889 | 73,304 | 66,950 | 64,010 | 61,985 |
| 26 Georgia Institute of Tech | 94,842 | 98,048 | 78,798 | 63,132 | 58,432 | 50,349 | 51,241 | 49,533 |
| 27 Texas A & M University | 93,001 | 93,584 | 90,163 | 75,432 | 75,946 | 71,346 | 53,201 | 43,813 |
| 28 University of Arizona | 92,920 | 80,533 | 73,309 | 65,024 | 61,973 | 51,694 | 47,411 | 44,741 |
| 29 Univ of NC at Chapel Hill | 92,468 | 93,280 | 82,723 | 72,529 | 64,625 | 55,746 | 44,430 | 43,384 |
| 30 University of Pittsburgh | 90,700 | 81,217 | 72,462 | 62,060 | 55,805 | 48,714 | 40,668 | 36,334 |
| Total, 1st 30 insts. | 4,687,121 | 4,414,724 | 4,050,908 | 3,665,198 | 3,357,990 | 3,023,254 | 2,701,528 | 2,467,650 |
| 31 California Inst of Tech | 90,577 | 84,167 | 78,750 | 71,086 | 63,708 | 56,805 | 43,390 | 43,340 |
| 32 New York University | 80,756 | 31,143 | 77,746 | 76,126 | 69,099 | 60,567 | 54,298 | 49,860 |
| 33 University of Iowa | 79,046 | 74,271 | 64,370 | 57,159 | 52,497 | 48,059 | 41,468 | 40,460 |
| 34 Ohio State University | 78,878 | 75,484 | 69,135 | 58,555 | 56,418 | 53,240 | 46,060 | 43,686 |
| 35 Univ of Cal Davis | 77,424 | 72,718 | 63,435 | 56,622 | 48,549 | 47,652 | 45,436 | 43,439 |
| 36 Baylor Col of Medicine | 75,793 | 69,336 | 60,825 | 49,834 | 46,729 | 41,749 | 37,378 | 36,772 |
| 37 Univ Alabama Birmingham | 74,486 | 68,204 | 62,369 | 54,534 | 45,337 | 39,030 | 32,383 | 25,509 |
| 38 Case Western Reserve Univ | 70,515 | 68,632 | 59,078 | 53,580 | 47,032 | 42,182 | 39,337 | 34,963 |
| 39 University of Miami | 68,144 | 63,101 | 48,971 | 38,052 | 36,531 | 32,817 | 30,644 | 32,236 |
| 40 SUNY at Buffalo | 66,876 | 64,453 | 60,097 | 51,212 | 47,308 | 42,860 | 39,417 | 38,415 |
| Total, 1st 40 insts. | 5,449,616 | 5,136,233 | 4,695,684 | 4,231,958 | 3,871,198 | 3,488,215 | 3,111,339 | 2,856,330 |
| 41 Vanderbilt University | 66,747 | 56,151 | 44,646 | 31,343 | 27,269 | 24,709 | 21,649 | 19,889 |
| 42 Univ of MD College Park | 66,410 | 58,924 | 55,365 | 55,194 | 43,769 | 39,365 | 32,829 | 30,768 |
| 43 Yeshiva University | 65,063 | 58,224 | 58,823 | 59,768 | 56,922 | 55,794 | 51,494 | 46,102 |
| 44 University of Florida | 64,614 | 60,731 | 54,785 | 49,311 | 46,751 | 42,031 | 39,946 | 33,708 |
| 45 Carnegie-Mellon Univ | 64,550 | 65,079 | 63,009 | 53,817 | 41,706 | 37,666 | 33,419 | 30,546 |
| 46 Purdue University | 64,464 | 63,979 | 64,163 | 56,302 | 56,475 | 48,542 | 43,524 | 42,147 |
| 47 Woods Hole Oceanographic Inst | 62,356 | 64,333 | 49,400 | 42,239 | 38,666 | 38,560 | 37,765 | 35,997 |
| 48 University of Utah | 62,297 | 61,819 | 57,383 | 54,226 | 51,428 | 45,564 | 41,606 | 37,981 |
| 49 Northwestern University | 61,812 | 57,510 | 54,245 | 49,286 | 46,755 | 42,317 | 40,709 | 36,519 |
| 50 Boston University | 60,459 | 56,402 | 51,918 | 49,406 | 45,457 | 38,257 | 34,276 | 27,906 |
| Total, 1st 50 insts. | 6,088,391 | 5,739,385 | 5,249,421 | 4,732,850 | 4,326,396 | 3,901,020 | 3,488,556 | 3,197,893 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 2 of 10

| Institution ranking | Federally financed | | | | | | | |
|-------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 51 Utah State University | 58,965 | 42,449 | 34,763 | 22,109 | 22,814 | 21,716 | 19,983 | 19,058 |
| 52 University of Virginia | 58,801 | 51,214 | 47,482 | 41,267 | 38,541 | 35,152 | 31,947 | 28,564 |
| 53 Univ. Of Tennessee System | 58,648 | 57,763 | 43,108 | 36,902 | 34,569 | 31,226 | 27,412 | 25,392 |
| 54 Michigan State University | 58,221 | 51,741 | 49,771 | 44,989 | 47,725 | 46,605 | 44,133 | 43,067 |
| 55 Indiana University | 57,155 | 58,334 | 52,498 | 44,211 | 40,024 | 37,527 | 32,565 | 29,882 |
| 56 Univ of Massachusetts | 56,018 | 56,305 | 52,139 | 44,236 | 39,452 | 33,344 | 28,945 | 27,017 |
| 57 SUNY at Stony Brook | 55,911 | 49,726 | 54,017 | 40,302 | 35,249 | 31,946 | 28,046 | 25,639 |
| 58 UT SW Medical Ctr-Dallas | 54,965 | 51,254 | 48,557 | 45,382 | 38,504 | 34,087 | 29,175 | 26,561 |
| 59 New Mexico State Univ | 54,688 | 45,660 | 43,481 | 37,904 | 33,394 | 29,235 | 29,159 | 30,750 |
| 60 Univ of Cal Irvine | 52,492 | 46,492 | 42,894 | 38,138 | 38,328 | 34,772 | 29,929 | 27,484 |
| Total, 1st 60 insts. | 6,654,255 | 6,250,523 | 5,717,931 | 5,128,310 | 4,694,996 | 4,236,830 | 3,789,850 | 3,481,307 |
| 61 Emory University | 52,367 | 46,497 | 43,668 | 36,698 | 32,819 | 26,136 | 22,896 | 20,163 |
| 62 Princeton University | 51,559 | 47,176 | 47,245 | 43,505 | 36,199 | 30,892 | 27,747 | 25,027 |
| 63 Colorado State University | 50,744 | 46,572 | 44,600 | 38,961 | 36,592 | 28,702 | 26,479 | 25,321 |
| 64 Oregon State University | 50,544 | 49,112 | 48,877 | 46,774 | 41,307 | 41,117 | 40,482 | 35,530 |
| 65 Louisiana State Univ | 48,802 | 40,114 | 35,578 | 31,089 | 27,808 | 26,086 | 20,818 | 18,786 |
| 66 Univ of Cal Santa Barbara | 47,873 | 39,227 | 36,205 | 32,856 | 27,320 | 23,131 | 21,552 | 17,863 |
| 67 VA Polytech Inst & St U | 45,949 | 38,597 | 33,771 | 32,129 | 30,259 | 25,650 | 23,090 | 20,406 |
| 68 University of Cincinnati | 44,966 | 40,598 | 35,986 | 32,044 | 27,758 | 24,924 | 22,350 | 20,074 |
| 69 Univ of Ill Chicago | 43,968 | 43,288 | 40,260 | 34,570 | 30,109 | 26,357 | 24,829 | 24,549 |
| 70 University of Georgia | 43,864 | 42,797 | 39,703 | 35,261 | 32,184 | 28,403 | 26,581 | 22,434 |
| Total, 1st 70 insts. | 7,134,891 | 6,684,501 | 6,123,824 | 5,492,197 | 5,017,351 | 4,516,228 | 4,046,674 | 3,711,460 |
| 71 W C State Univ at Raleigh | 43,787 | 37,783 | 34,256 | 33,662 | 30,851 | 28,229 | 25,668 | 23,286 |
| 72 CUNY Mt Sinai Sch of Med | 43,607 | 37,233 | 32,852 | 31,024 | 26,166 | 23,997 | 21,411 | 20,587 |
| 73 University of Connecticut | 43,477 | 46,184 | 38,953 | 36,884 | 36,142 | 38,944 | 44,592 | 34,960 |
| 74 Univ of Hawaii-Manoa | 42,665 | 40,574 | 38,560 | 34,472 | 35,322 | 34,886 | 32,701 | 27,633 |
| 75 Virginia Commonwealth Univ | 41,606 | 35,151 | 31,150 | 31,095 | 27,242 | 26,816 | 20,658 | 21,998E |
| 76 Rutgers the St Univ of NJ | 40,977 | 35,896 | 29,204 | 27,178 | 24,059 | 23,947 | 19,984 | 18,894 |
| 77 Univ of MD Balt Prof Sch | 38,841 | 35,970 | 33,102 | 26,244 | 21,735 | 19,738I | 17,741I | 15,744I |
| 78 Tufts University | 38,290 | 40,771 | 41,953 | 37,148 | 32,696I | 28,249I | 23,802I | 19,355I |
| 79 Brown University | 36,919 | 34,506 | 35,150 | 32,024 | 25,333 | 22,645 | 21,294 | 19,728 |
| 80 Rockefeller University | 36,788 | 41,192 | 37,452 | 37,983 | 35,738 | 30,047 | 26,713 | 23,625 |
| Total, 1st 80 insts. | 7,541,848 | 7,069,761 | 6,476,456 | 5,819,911 | 5,312,635 | 4,795,726 | 4,301,238 | 3,937,270 |
| 81 Georgetown University | 36,093 | 37,351 | 30,666 | 24,477 | 19,894 | 16,887 | 14,626 | 11,630 |
| 82 Iowa St U of Sci & Tech | 34,043 | 28,895 | 23,308 | 19,682 | 17,376 | 16,030 | 20,755 | 21,050 |
| 83 Univ of Med & Dent of N J | 33,185 | 27,983 | 21,849 | 16,989 | 15,840 | 14,753 | 12,561 | 11,456 |
| 84 Florida State University | 32,927 | 25,498 | 24,027 | 21,416 | 21,850 | 16,910 | 12,054 | 10,810 |
| 85 Univ of Alaska Fairbanks | 31,896 | 26,659 | 23,441E | 21,523I | 19,607I | 17,691I | 15,775I | 13,859 |
| 86 U of VT & State Agr Coll | 30,555 | 28,535 | 25,539 | 22,289 | 19,848 | 18,957 | 14,932 | 12,850 |
| 87 Univ of South Florida | 30,481 | 26,576 | 8,841 | 7,890 | 7,344 | 5,545 | 4,901 | 3,543 |
| 88 Wake Forest University | 30,182 | 28,511 | 23,026 | 18,772 | 16,497I | 14,224I | 11,951I | 9,678I |
| 89 Dartmouth College | 30,135 | 27,222 | 25,729 | 21,864 | 18,816I | 15,769I | 12,722 | 12,730 |
| 90 University of Kentucky | 29,612 | 27,010 | 27,724 | 26,261 | 21,736 | 16,497 | 15,922 | 13,786 |
| Total, 1st 90 insts. | 7,860,957 | 7,354,001 | 6,710,604 | 6,021,074 | 5,491,443 | 4,948,989 | 4,437,437 | 4,058,662 |
| 91 U Tex Hlth Sci Ctr S Anto | 29,431 | 29,324 | 27,528 | 22,469 | 22,779 | 19,697 | 16,550 | 16,005 |
| 92 University of Dayton | 29,044 | 26,650 | 26,101 | 25,370 | 23,631 | 21,272 | 20,216 | 16,984 |
| 93 U Tex Hlth Sci Ctr Houstn | 29,017 | 29,500 | 27,658 | 24,727 | 22,604 | 19,023 | 14,732 | 14,410 |
| 94 UT MD Anderson Cancer Ctr | 28,889 | 28,992 | 27,129 | 22,162 | 21,304 | 19,408 | 16,379 | 15,112 |
| 95 Wayne State University | 28,488 | 28,167 | 22,716 | 16,927 | 15,789 | 15,682 | 14,565 | 12,713 |
| 96 Tulane University | 28,331 | 24,095 | 23,727 | 21,836 | 18,420 | 14,471 | 12,294 | 11,221 |
| 97 Oregon Hlth Sciences Univ | 27,241 | 24,162 | 18,240 | 15,379 | 13,241 | 10,928 | 10,443 | 10,013 |
| 98 Washington State Univ | 26,884 | 22,697 | 21,361 | 21,274 | 20,115 | 20,567 | 12,908 | 12,563 |
| 99 George Washington Univ | 26,817 | 25,220 | 19,888 | 20,142 | 17,579I | 15,016 | 17,209 | 17,792 |
| 100 University of Kansas | 26,786 | 26,420 | 24,880 | 22,941 | 21,837 | 19,731I | 17,628I | 15,525I |
| Total, 1st 100 insts. | 8,141,885 | 7,619,228 | 6,949,832 | 6,234,301 | 5,688,742 | 5,124,784 | 4,590,761 | 4,201,000 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 3 of 10

| Institution ranking | Federally financed | | | | | | | |
|-------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 101 Arizona State University | 26,590 | 22,151 | 19,006 | 14,009 | 13,541 | 12,556 | 9,031 | 10,288 |
| 102 Temple University | 26,164 | 25,232 | 20,137 | 18,352 | 18,573 | 18,398 | 18,680 | 18,567 |
| 103 University of New Mexico | 25,449 | 23,934 | 24,862E | 29,096 | 35,810 | 33,040 | 23,342 | 22,655I |
| 104 Univ of Missouri Columbia | 24,422 | 22,312 | 20,170 | 20,250 | 20,068 | 18,577 | 17,325 | 16,143 |
| 105 Rensselaer Polytech Inst | 22,809 | 19,143 | 18,320 | 14,207 | 12,996 | 11,673 | 11,804 | 12,054 |
| 106 Univ of Nebraska-Lincoln | 22,686 | 25,803 | 25,448 | 24,512 | 20,823 | 17,156 | 14,195 | 12,750 |
| 107 Thomas Jefferson Univ | 22,451 | 21,311 | 16,766 | 14,070 | 7,307 | 7,229 | 6,912 | 6,068 |
| 108 U Tex Med Brnch Galveston | 21,693 | 23,152 | 19,717 | 16,738 | 15,307I | 13,876 | 11,595 | 10,428 |
| 109 Medical College of Wis | 21,594 | 21,432 | 19,803 | 15,551 | 13,600 | 12,272 | 11,148I | 10,027I |
| 110 Mississippi State Univ | 21,426 | 17,694 | 13,556 | 12,387 | 12,781 | 11,151 | 10,310 | 7,775 |
| Total, 1st 110 insts. | 8,377,169 | 7,841,392 | 7,147,617 | 6,413,473 | 5,859,548 | 5,280,712 | 4,725,103 | 4,327,755 |
| 111 Univ Alabama Huntsville | 21,355 | 18,001 | 11,998 | 7,548 | 4,442 | 3,397 | 2,752 | 2,497 |
| 112 Univ of South Carolina | 20,587 | 17,596 | 15,655 | 14,537 | 14,116 | 10,805 | 9,334 | 8,260 |
| 113 Univ of Rhode Island | 20,511 | 21,940 | 22,567 | 19,289 | 19,933I | 20,577 | 21,081 | 19,740I |
| 114 University of Oregon | 20,151 | 17,286 | 14,573 | 12,783 | 12,918 | 11,423 | 10,532 | 9,031 |
| 115 Rice University | 19,997 | 16,340 | 14,300 | 13,155I | 12,012I | 10,869 | 9,766I | 8,663I |
| 116 Syracuse University | 18,924 | 20,367 | 22,377 | 17,987 | 15,799 | 12,812 | 8,716 | 9,904 |
| 117 Brandeis University | 18,819 | 19,080 | 18,595 | 16,857I | 15,119I | 13,381 | 13,112 | 12,932 |
| 118 West Virginia University | 18,451 | 15,662 | 14,430 | 12,099 | 12,708 | 11,516 | 10,225 | 9,622 |
| 119 Oklahoma State University | 17,744 | 14,116 | 12,850 | 9,575 | 6,502 | 11,833 | 9,170 | 10,081I |
| 120 University of Delaware | 17,588 | 17,083 | 13,708 | 13,662 | 12,578 | 10,626 | 10,811 | 9,583 |
| Total, 1st 120 insts. | 8,571,296 | 8,018,863 | 7,309,070 | 6,550,965 | 5,987,675 | 5,397,951 | 4,830,602 | 4,428,068 |
| 121 U of Houston | 17,575 | 16,358 | 14,152 | 11,040 | 9,680 | 9,245 | 8,072 | 7,002 |
| 122 US Naval Postgrad School | 17,333 | 15,170 | 15,487 | 12,934 | 13,006 | 12,083 | 10,891I | 9,700 |
| 123 University of Oklahoma | 16,871 | 17,020 | 16,326 | 14,453 | 14,263 | 17,229 | 16,003 | 14,206 |
| 124 Univ of Cal Riverside | 15,806 | 15,584 | 16,672 | 15,001 | 14,626 | 13,864 | 13,127 | 11,602 |
| 125 Kans St U - Ag & App Sci | 15,651 | 15,951 | 14,294 | 13,270 | 12,969 | 10,421 | 10,766 | 10,268 |
| 126 University of Mississippi | 14,973 | 10,841 | 9,317 | 8,247 | 7,786 | 6,877 | 6,708 | 6,262E |
| 127 San Diego State Univ | 14,647 | 13,048 | 12,688 | 11,386 | 6,031 | 5,225 | 4,735 | 5,480 |
| 128 Auburn University | 14,629 | 15,179 | 18,243 | 13,446 | 11,893 | 10,237 | 8,448 | 8,083 |
| 129 SUNY Hlth Sci Ctr - Brkln | 14,574 | 11,552 | 10,754 | 10,494 | 9,946I | 9,399I | 8,852 | 9,100 |
| 130 SUNY at Albany | 14,497 | 15,171 | 13,595 | 13,019 | 11,662 | 9,228 | 7,587 | 7,418 |
| Total, 1st 130 insts. | 8,727,852 | 8,164,737 | 7,450,598 | 6,674,255 | 6,099,537 | 5,501,759 | 4,925,791 | 4,517,189 |
| 131 Univ of New Hampshire | 14,455 | 14,594 | 13,348 | 12,769 | 11,113 | 10,676 | 9,102 | 7,546 |
| 132 University of N Dakota | 14,398 | 14,104 | 12,075 | 12,515 | 10,759I | 9,006I | 7,253I | 5,500 |
| 133 Univ of P R-Mayaguez | 14,337 | 14,114 | 12,879 | 8,732 | 8,183I | 7,634I | 7,085I | 6,536I |
| 134 Clemson University | 14,221 | 12,484 | 13,148 | 9,016 | 7,550 | 9,965 | 6,668 | 7,822 |
| 135 St Louis University | 14,106 | 12,272 | 8,332 | 7,783I | 7,236I | 6,689I | 6,142I | 5,595 |
| 136 Univ of Cal Santa Cruz | 13,855 | 12,543 | 12,263 | 11,432 | 10,652 | 10,074 | 8,571 | 8,303 |
| 137 University of Idaho | 13,812 | 12,207 | 10,970 | 8,720 | 8,987 | 13,656 | 12,660 | 11,496 |
| 138 Florida A & M University | 13,110 | 10,509 | 8,674 | 8,100 | 7,683I | 7,266 | 8,341 | 4,793I |
| 139 Howard University | 13,067 | 12,146I | 11,227I | 10,308 | 10,258E | 11,721 | 11,098 | 8,671 |
| 140 University of Notre Dame | 12,867 | 13,209 | 13,579 | 10,399 | 9,984 | 10,429 | 9,909 | 11,177 |
| Total, 1st 140 insts. | 8,866,080 | 8,292,919 | 7,567,093 | 6,774,029 | 6,191,942 | 5,598,875 | 5,012,620 | 4,594,628 |
| 141 University of Wyoming | 12,207 | 13,804 | 11,136 | 8,701 | 9,321 | 7,452 | 7,700 | 6,591 |
| 142 Univ of Nevada - Reno | 11,922 | 8,647 | 9,989 | 8,033 | 7,454I | 6,877I | 6,300E | 6,000E |
| 143 The Medical Col of Penna | 11,704 | 11,514 | 9,020 | 7,449 | 6,289I | 5,129I | 3,969 | 3,371 |
| 144 Unif Serv Univ of Hlth Sc | 11,288 | 12,706 | 12,613 | 12,076 | 12,860 | 10,453 | 8,890 | 6,997 |
| 145 Lehigh University | 11,242 | 9,925 | 10,297 | 9,679 | 7,082 | 6,383 | 6,846 | 6,383 |
| 146 Southern Methodist Univ | 11,000E | 6,244 | 5,315 | 4,005 | 3,329I | 2,654 | 1,886 | 1,454 |
| 147 Med Univ of So Carolina | 10,910 | 11,547 | 10,956 | 10,797 | 10,297 | 9,087 | 8,038 | 7,629 |
| 148 Univ of Ark Fayetteville | 10,831 | 8,955 | 8,193 | 7,696 | 8,612 | 8,134 | 6,713 | 7,283 |
| 149 CUNY City College | 10,554 | 9,005 | 8,071 | 7,552 | 6,942I | 6,332 | 6,097 | 5,494 |
| 150 Northeastern University | 10,217 | 10,201 | 8,966 | 8,088 | 7,519 | 6,975 | 6,434I | 5,895I |
| Total, 1st 150 insts. | 8,977,955 | 8,395,467 | 7,661,649 | 6,858,105 | 6,271,647 | 5,668,351 | 5,075,493 | 4,651,725 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 4 of 10

| Institution ranking | Federally financed | | | | | | | |
|-------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 151 SUNY Hlth Sci Ctr - Svcs | 9,965 | 9,520 | 7,497 | 6,427 | 5,181 | 5,095 | 6,585 | 5,270 |
| 152 Texas Tech University | 9,695 | 11,130 | 11,620 | 11,089 | 10,501 | 9,057 | 7,359I | 5,662 |
| 153 Univ of Central Florida | 9,354 | 11,153 | 3,476 | 2,701I | 1,926E | 1,503 | 2,239I | 2,974 |
| 154 U of Neb Med Ctr at Omaha | 9,078 | 8,572 | 7,765 | 7,243 | 6,643 | 6,608 | 4,594 | 3,489 |
| 155 Montana State University | 9,052 | 8,781 | 10,710 | 8,727I | 6,745 | 7,060 | 5,388 | 6,309 |
| 156 Univ of Maine Orono | 9,046 | 8,288 | 7,048 | 7,787 | 8,584 | 10,653 | 8,444 | 8,313 |
| 157 New York Medical College | 9,028 | 10,021 | 11,097 | 10,038 | 8,086 | 6,739 | 4,604 | 6,674 |
| 158 Desert Research Institute | 8,767 | 8,968 | 8,088 | 6,539 | 5,811 | 4,737 | 4,406 | 3,389 |
| 159 University of Louisville | 8,637 | 5,953 | 5,438 | 4,517 | 3,227 | 2,744 | 3,395 | 4,294 |
| 160 Hahnemann University | 8,244 | 7,809 | 6,818 | 6,792 | 9,094 | 9,520 | 6,656 | 5,929 |
| Total, 1st 160 insts. | 9,068,821 | 8,485,662 | 7,741,206 | 6,929,965 | 6,337,445 | 5,732,067 | 5,129,163 | 4,704,028 |
| 161 Medical Col of Georgia | 8,045 | 7,392 | 7,621 | 7,705 | 7,331 | 6,387 | 5,604 | 5,756 |
| 162 Southern Ill U-Carbondale | 8,035 | 6,571 | 6,816 | 6,045 | 5,644 | 5,668 | 4,717 | 4,163 |
| 163 Eastern VA Medical School | 7,782 | 6,887 | 5,291 | 2,611 | 2,092I | 1,576I | 1,060I | 544 |
| 164 NC Ag & Tech State Univ | 7,503 | 5,752 | 5,717 | 3,603 | 4,763 | 4,373 | 4,124 | 4,488 |
| 165 University of Denver | 7,476 | 6,825 | 6,453 | 8,742 | 9,518 | 10,265E | 11,012E | 11,759E |
| 166 Wright State University | 7,426 | 5,714 | 5,012 | 3,695 | 3,939 | 2,956 | 3,112 | 3,035 |
| 167 San Jose State University | 7,370 | 7,220 | 5,944 | 5,614I | 5,284I | 4,954I | 4,624I | 4,294I |
| 168 Univ of South Alabama | 7,237 | 6,966 | 5,273 | 4,715 | 4,866 | 4,652 | 4,051 | 3,502I |
| 169 Old Dominion U Res Fdn | 7,036 | 6,175 | 5,334 | 4,444 | 4,297I | 4,151I | 4,005 | 3,988E |
| 170 Polytechnic University | 7,025 | 6,824 | 6,561 | 6,729 | 5,771 | 4,821 | 4,398 | 4,113 |
| Total, 1st 170 insts. | 9,143,756 | 8,551,988 | 7,801,228 | 6,983,868 | 6,390,950 | 5,781,870 | 5,175,870 | 4,749,080 |
| 171 The University of Alabama | 6,941 | 6,542 | 6,376 | 5,139 | 3,455 | 3,242 | 2,464I | 1,686I |
| 172 Oregon Grad Inst Sci/Tech | 6,837 | 6,582 | 6,513 | 4,997 | 4,218I | 3,441I | 2,664 | 2,387I |
| 173 Boston College | 6,798 | 5,824 | 5,891 | 4,765 | 4,550I | 4,336 | 4,604I | 4,871 |
| 174 Catholic Univ of America | 6,783 | 6,077 | 5,446 | 5,061 | 3,777 | 4,003 | 3,603 | 2,899 |
| 175 Drexel University | 6,761 | 6,371 | 6,600 | 7,870 | 6,635 | 5,623 | 4,217 | 4,291 |
| 176 Univ of Wis-Milwaukee | 6,715 | 5,447 | 4,662 | 3,939 | 3,643 | 3,211 | 3,505 | 3,383 |
| 177 U of Arkansas Med Sci Cam | 6,654 | 5,258 | 5,846 | 4,561 | 3,773 | 3,417 | 3,291 | 3,950 |
| 178 College of William & Mary | 6,460 | 5,349 | 4,942 | 4,020 | 4,100 | 4,150 | 2,624 | 2,095 |
| 179 North Dakota State Univ | 6,417 | 5,292 | 4,210 | 2,870 | 1,970 | 2,622I | 3,273I | 3,924 |
| 180 M-harry Medical College | 6,391 | 6,397 | 5,125 | 4,414 | 3,759I | 3,107I | 2,455I | 1,803 |
| Total, 1st 180 insts. | 9,210,513 | 8,611,127 | 7,856,839 | 7,031,504 | 6,430,830 | 5,819,022 | 5,208,570 | 4,780,369 |
| 181 Loyola Univ - Chicago | 6,203 | 6,051 | 4,447 | 3,804 | 3,303 | 2,876 | 2,932 | 2,793 |
| 182 Rush University | 6,083 | 7,582 | 6,553 | 7,823 | 7,191 | 6,649 | 6,015 | 7,137 |
| 183 Albany Med Ctr Grad Sch | 6,073 | 7,259 | 7,915 | 8,795 | 8,483I | 8,175I | 7,867I | 7,559I |
| 184 Michigan Tech University | 6,045 | 5,210 | 6,226 | 4,757 | 3,969 | 3,901 | 4,496 | 3,568 |
| 185 Med Col of Ohio at Toledo | 5,956 | 5,855 | 4,530 | 5,756 | 5,450I | 5,145I | 4,840I | 4,535I |
| 186 Univ of Texas at Dallas | 5,888 | 6,812 | 7,109 | 7,850 | 6,029 | 5,461 | 4,748 | 4,128 |
| 187 N Mex Inst Mining & Tech | 5,610 | 7,183 | 5,492 | 8,923 | 7,130 | 5,891I | 4,653 | 4,734I |
| 188 Alabama A & M University | 5,560 | 4,801 | 5,121 | 4,356 | 3,830I | 3,304I | 2,778 | 2,057 |
| 189 Univ of Texas at El Paso | 5,451 | 2,561 | 1,893 | 2,068 | 1,493 | 950 | 929 | 720 |
| 190 Univ of P R-Med Sci Cmpus | 5,366 | 5,235 | 4,218 | 5,389 | 5,078I | 4,768I | 4,458I | 4,148I |
| Total, 1st 190 insts. | 9,268,748 | 8,669,676 | 7,910,343 | 7,091,025 | 6,482,786 | 5,866,142 | 5,252,286 | 4,821,748 |
| 191 Brigham Young University | 5,357 | 4,785 | 5,660 | 5,020 | 4,128I | 3,237 | 2,747 | 2,479 |
| 192 Colorado School of Mines | 5,310 | 4,435 | 4,997 | 5,146 | 4,718 | 3,841 | 3,142 | 3,675 |
| 193 Morehouse School of Med | 5,149 | 4,238 | 1,815 | 0 | 0I | 0I | 0 | 0 |
| 194 Tuskegee University | 4,783 | 4,967 | 3,543 | 2,598 | 1,689I | 781 | 890I | 998E |
| 195 University of Lowell | 4,662 | 5,974 | 5,608 | 5,087 | 6,096 | 3,838 | 2,059 | 2,075 |
| 196 Kent State University | 4,656 | 2,613 | 3,027 | 2,993 | 2,218 | 2,225 | 1,947 | 1,495 |
| 197 CUNY Hunter College | 4,531 | 4,065 | 4,223 | 4,373 | 4,031 | 2,950 | 2,125 | 2,723 |
| 198 U of MD Baltimore County | 4,147 | 3,457 | 3,626 | 2,743 | 2,437 | 2,250 | 1,699 | 1,657 |
| 199 Ohio University | 4,140 | 3,722 | 3,540 | 2,828 | 2,893 | 2,295 | 1,834 | 2,012 |
| 200 Southern U & A&M College | 4,094 | 3,253 | 3,112 | 2,196 | 2,715 | 3,071 | 3,023 | 2,401 |
| Total, 1st 200 insts. | 9,315,577 | 8,711,165 | 7,949,494 | 7,124,009 | 6,513,711 | 5,890,630 | 5,271,752 | 4,841,263 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 5 of 10

| Institution ranking | Federally financed | | | | | | | |
|-------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 201 Univ of Stnrm Mississippi | 3,944 | 3,588 | 2,484 | 1,858 | 1,311 | 1,025 | 797 | 569 |
| 202 Illinois Inst of Tech | 3,887 | 3,947 | 3,277 | 6,586 | 3,986 | 4,510 | 4,647 | 3,891 |
| 203 Univ of Missouri Rolla | 3,863 | 3,459 | 3,670 | 4,261 | 3,906 | 4,074 | 3,994 | 3,468 |
| 204 Clarkson University | 3,841 | 4,359 | 3,141 | 5,253 | 4,676 | 3,296 | 2,741 | 2,769 |
| 205 SUNY at Binghamton | 3,702 | 2,914 | 2,732 | 2,773 | 3,341 | 3,165 | 3,084 | 3,438 |
| 206 Cleveland State Univ | 3,695 | 2,760 | 2,047 | 2,019 | 1,648 | 1,498 | 1,250 | 1,261 |
| 207 South Dakota State Univ | 3,666 | 3,254 | 3,343 | 3,022 | 3,266 | 1,492 | 2,375 | 2,462 |
| 208 Georgia State University | 3,621 | 2,507 | 2,340 | 2,106 | 1,161 | 978 | 1,033 | 818 |
| 209 Mercer University | 3,590 | 1,812 | 386 | 381 | 313 | 152 | 1,178 | 203 |
| 210 U Hlth Sci/Chcgc Med Sch | 3,547 | 3,269 | 3,246 | 2,147 | 1,784 | 1,636 | 1,501 | 1,366 |
| Total, 1st 210 insts. | 9,352,933 | 8,743,034 | 7,980,160 | 7,154,415 | 6,539,103 | 5,911,456 | 5,293,352 | 4,861,508 |
| 211 American University | 3,532 | 3,480 | 3,623 | 2,980 | 2,425 | 1,870 | 1,315 | 760 |
| 212 East Carolina University | 3,499 | 2,690 | 2,668 | 1,919 | 2,193 | 1,635 | 1,078 | 863 |
| 213 University of Montana | 3,468 | 2,771 | 2,925 | 2,572 | 2,337 | 2,103 | 1,975 | 1,848 |
| 214 Prairie View A & M Univ | 3,406 | 3,568 | 1,560 | 1,334 | 1,824 | 2,313 | 2,802 | 3,291 |
| 215 Jackson State University | 3,381 | 3,624 | 2,801 | 2,040 | 1,862 | 1,688 | 1,514 | 1,340 |
| 216 Loma Linda University | 3,349 | 2,294 | 3,867 | 4,801 | 3,834 | 2,867 | 2,532 | 2,191 |
| 217 Tennessee State Univ | 3,290 | 3,382 | 2,382 | 2,717 | 2,660 | 2,412 | 2,164 | 1,789 |
| 218 Northern Illinois Univ | 3,251 | 2,948 | 2,360 | 1,897 | 1,870 | 1,793 | 1,718 | 1,643 |
| 219 Chas R Drew U of Med & Sc | 3,098 | 2,898 | 2,826 | 2,913 | 1,942 | 971 | 0 | 0 |
| 220 University of Akron | 3,005 | 2,525 | 2,199 | 1,785 | 1,824 | 1,350 | 1,444 | 754 |
| Total, 1st 220 insts. | 9,386,212 | 8,773,214 | 8,008,371 | 7,179,373 | 6,561,874 | 5,930,458 | 5,309,894 | 4,875,995 |
| 221 CUNY Grad Sch & Univ Ctr | 2,990 | 2,112 | 1,690 | 1,848 | 1,833 | 1,056 | 807 | 1,388 |
| 222 Univ of P R-Rio Piedras | 2,980 | 2,855 | 3,652 | 3,217 | 2,927 | 2,638 | 2,349 | 2,060 |
| 223 Stevens Institute of Tech | 2,960 | 2,532 | 2,838 | 4,100 | 3,839 | 3,579 | 3,519 | 2,905 |
| 224 Kentucky State University | 2,856 | 1,721 | 1,697 | 1,827 | 1,636 | 1,446 | 1,256 | 1,151 |
| 225 Univ of Missouri Kan City | 2,767 | 2,391 | 1,485 | 812 | 670 | 373 | 322 | 352 |
| 226 Northern Arizona Univ | 2,749 | 2,683 | 2,315 | 1,922 | 1,101 | 1,213 | 741 | 423 |
| 227 Virginia State University | 2,744 | 2,056 | 2,476 | 2,326 | 2,176 | 2,026 | 2,293 | 2,153 |
| 228 W J Inst of Technology | 2,731 | 1,082 | 1,085 | 847 | 940 | 881 | 777 | 692 |
| 229 Portland State University | 2,693 | 1,999 | 1,923 | 1,999 | 1,676 | 1,353 | 1,177 | 1,196 |
| 230 Memphis State University | 2,666 | 2,299 | 1,647 | 1,268 | 908 | 650 | 578 | 509 |
| Total, 1st 230 insts. | 9,414,348 | 8,794,944 | 8,029,189 | 7,199,539 | 6,579,580 | 5,945,673 | 5,323,513 | 4,888,824 |
| 231 U of the Virgin Islands | 2,639 | 2,600 | 2,578 | 1,447 | 1,043 | 742 | 581 | 568 |
| 232 Louisiana Tech University | 2,629 | 2,842 | 760 | 828 | 745 | 663 | 581 | 499 |
| 233 Lincoln University | 2,600 | 2,706 | NA | NA | NA | NA | NA | NA |
| 234 George Mason University | 2,494 | 1,171 | 1,480 | 571 | 474 | 379 | 284 | 250 |
| 235 Creighton University | 2,405 | 2,386 | 1,828 | 1,520 | 1,213 | 906 | 913 | 892 |
| 236 U of MD Center For EES | 2,379 | 2,519 | 2,542 | 2,659 | 2,227 | 1,572 | 920 | 850 |
| 237 Worcester Poly Institute | 2,365 | 2,411 | 1,655 | 1,087 | 1,191 | 1,292 | 1,393 | 1,494 |
| 238 Fairleigh Dickinson Univ | 2,364 | 2,355 | 3,274 | 2,402 | 1,501 | 1,007 | 1,007 | 768 |
| 239 Central State University | 2,323 | 449 | NA | NA | NA | NA | NA | NA |
| 240 Hampton University | 2,307 | 2,168 | NA | NA | NA | NA | NA | NA |
| Total, 1st 240 insts. | 9,438,853 | 8,816,551 | 8,043,306 | 7,210,023 | 6,587,974 | 5,952,234 | 5,329,192 | 4,894,145 |
| 241 S Dak Sch Mines & Tech | 2,268 | 2,128 | 1,815 | 1,462 | 1,251 | 1,207 | 1,138 | 1,069 |
| 242 Air Force Inst of Tech/Wr | 2,200 | 1,800 | 1,400 | 456 | 370 | 285 | 146 | 130 |
| 243 University of Toledo | 2,101 | 1,966 | 1,894 | 1,583 | 1,273 | 1,005 | 829 | 627 |
| 244 Texas Col of Osteo Med | 2,031 | 2,518 | 2,508 | 2,381 | 1,914 | 1,816 | 1,718 | 1,620 |
| 245 Florida Atlantic Univ | 2,010 | 1,295 | 847 | 648 | 659 | 543 | 494 | 473 |
| 246 CUNY Queens College | 1,987 | 1,919 | 1,612 | 1,461 | 1,312 | 1,163 | 1,014 | 865 |
| 247 Univ of North Texas | 1,974 | 2,813 | 2,828 | 3,022 | 2,506 | 2,482 | 2,805 | 3,249 |
| 248 SUNY Col of Env Sci & For | 1,973 | 1,883 | 1,669 | 1,209 | 1,379 | 1,549 | 1,597 | 1,643 |
| 249 Wesleyan University | 1,949 | 2,193 | 2,007 | 1,890 | 1,841 | 2,104 | 2,932 | 3,760 |
| 250 Fort Valley State Univ. | 1,938 | 1,741 | NA | NA | NA | NA | NA | NA |
| Total, 1st 250 insts. | 9,459,284 | 8,836,807 | 8,059,886 | 7,224,135 | 6,600,479 | 5,964,388 | 5,341,865 | 4,907,581 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 6 of 10

| Institution ranking | Federally financed | | | | | | | |
|-------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 251 Xavier University of LA | 1,902 | 1,294 | NA | NA | NA | NA | NA | NA |
| 252 Bowling Green State Univ | 1,882 | 1,770 | 1,475 | 1,037 | 1,338 | 1,060 | 1,034 | 1,000 |
| 253 Oakland University | 1,882 | 2,767 | 2,475 | 3,035 | 2,747 | 2,461 | 2,175 | 1,889 |
| 254 Marquette University | 1,855 | 1,487 | 1,671 | 1,080 | 965 | 1,274 | 1,152 | 1,006 |
| 255 Univ of Tex at Arlington | 1,795 | 1,406 | 2,255 | 1,667 | 955 | 930 | 832 | 577 |
| 256 Fordham University | 1,723 | 2,063 | 1,752 | 1,805 | 1,525 | 1,245 | 965 | 1,043 |
| 257 U of MD Eastern Shore | 1,552 | 2,203 | 1,736 | 1,522 | 1,606 | 1,414 | 1,223 | 1,032E |
| 258 Univ of Wis-Superior | 1,550 | 1,495 | 1,309 | 1,414 | 1,253 | 1,243 | 1,116 | 954 |
| 259 Alcorn State University | 1,487 | 1,850 | 1,692 | 1,623 | 1,554 | 1,485 | 1,359 | 1,237 |
| 260 University of D C | 1,455 | 1,330 | 1,205 | 738 | 1,706 | 1,508 | 678 | 505 |
| Total, 1st 260 insts. | 9,476,367 | 8,854,472 | 8,075,456 | 7,238,056 | 6,614,128 | 5,977,008 | 5,352,399 | 4,916,824 |
| 261 Wentworth Inst of Tech | 1,435 | 1,383 | 1,457 | 1,431 | 1,405 | 1,379 | 1,353 | 1,327 |
| 262 OSU College of Osteo Med | 1,368 | 715 | 916 | 651 | 420 | 349 | 282 | 215 |
| 263 Miami University (Ohio) | 1,365 | 1,659 | 1,479 | 1,301 | 1,123 | 945 | 767 | 651 |
| 264 Texas Southern Univ | 1,363 | 1,293 | 1,419 | 1,263 | 1,107 | 951 | 302 | 396 |
| 265 Texas Christian Univ | 1,362 | 488 | 302 | 493 | 636 | 447 | 291 | 642 |
| 266 Nova University | 1,341 | 981 | 839 | 779 | 632 | 486 | 564 | 646 |
| 267 Univ of N C at Charlotte | 1,327 | 817 | 483 | 434 | 386 | 338 | 290 | 242 |
| 268 Lamar University | 1,317 | 388 | 2 | 64 | 58 | 62 | 10 | 0 |
| 269 South Carolina St College | 1,308 | 1,014 | 721 | 810 | 899 | 988 | 1,077 | 1,166 |
| 270 Seton Hall University | 1,302 | 1,236 | 1,135 | 1,027 | 935 | 843 | 763 | 710 |
| Total, 1st 270 insts. | 9,489,855 | 8,864,446 | 8,084,209 | 7,246,309 | 6,621,729 | 5,983,796 | 5,358,090 | 4,922,819 |
| 271 Tenn Technological Univ | 1,286 | 743 | 731 | 711 | 606 | 501 | 401 | 482 |
| 272 Bryn Mawr College | 1,252 | 536 | 687 | 696 | 435 | 427 | 372 | 478 |
| 273 Florida Inst of Tech | 1,251 | 898 | 552 | 577 | 656 | 712 | 703 | 604 |
| 274 Marshall University | 1,244 | 1,647 | 1,484 | 901 | 818 | 836 | 772 | 590 |
| 275 Amherst College | 1,233 | 1,047 | 1,091 | 1,015 | 942 | 869 | 796 | 723 |
| 276 East Tennessee State Univ | 1,219 | 919 | 447 | 486 | 427 | 368 | 220 | 434 |
| 277 Langston University | 1,200 | 1,961 | NA | NA | NA | NA | NA | NA |
| 278 Illinois State University | 1,193 | 973 | 1,011 | 854 | 642 | 624 | 609 | 594 |
| 279 Univ of Ark Pine Bluff | 1,188 | 1,148 | 1,199 | 1,047 | 1,010 | 1,002 | 885 | 1,056E |
| 280 Univ of Missouri St Louis | 1,167 | 1,430 | 779 | 698 | 913 | 592 | 574 | 403 |
| Total, 1st 280 insts. | 9,502,088 | 8,875,748 | 8,092,190 | 7,253,294 | 6,628,178 | 5,989,727 | 5,363,430 | 4,928,183 |
| 281 Cal Sch Prof Psych-L A | 1,163 | 1,383 | 322 | 164 | 164 | 0 | 0 | 0 |
| 282 Fisk University | 1,156 | 1,131 | 1,379 | 777 | 661 | 545 | 429 | 313 |
| 283 Eastern Washington Univ | 1,061 | 738 | 532 | 488 | 559 | 519 | 614 | 707 |
| 284 Wichita State University | 1,041 | 1,921 | 3,228 | 1,175 | 746 | 936 | 762 | 547 |
| 285 University of Tulsa | 1,037 | 926 | 911 | 823 | 736 | 649 | 510 | 702 |
| 286 Cal Sch Prof Psych-Fresno | 985 | 1,566 | 940 | 476 | 238 | 0 | 0 | 0 |
| 287 Inst Paper Sci and Tech | 965 | 1,382 | 1,049 | 1,469 | 867 | 658 | 604 | 565 |
| 288 Union College (NY) | 944 | 478 | 221 | 205 | 191 | 177 | 172 | 92 |
| 289 Villanova University | 943 | 885 | 223 | 459 | 366 | 274 | 221 | 322 |
| 290 Univ of South Dakota | 940 | 784 | 685 | 645 | 605 | 565 | 525 | 689 |
| Total, 1st 290 insts. | 9,512,323 | 8,886,942 | 8,101,680 | 7,259,975 | 6,633,311 | 5,994,050 | 5,367,267 | 4,932,120 |
| 291 SUNY College Plattsburgh | 930 | 755 | 912 | 742 | 469 | 278 | 133 | 0 |
| 292 Delaware State College | 920 | 920 | NA | NA | NA | NA | NA | NA |
| 293 Clark University | 919 | 794 | 820 | 942 | 1,139 | 1,332 | 1,525 | 1,718 |
| 294 Ponce School of Medicine | 919 | 782 | 642 | 602 | 607 | 111 | 0 | 0 |
| 295 University of the Pacific | 897 | 990 | 941 | 894 | 847 | 800 | 753 | 706 |
| 296 Univ of Southwestern LA | 874 | 818 | 863 | 589 | 518 | 448 | 457 | 466 |
| 297 Morehouse College | 868 | 997 | NA | NA | NA | NA | NA | NA |
| 298 Norfolk State University | 825 | 648 | 400 | 266 | 456 | 588 | 584 | 583 |
| 299 Univ of N C at Greensboro | 806 | 596 | 278 | 370 | 256 | 320 | 256 | 241 |
| 300 Selma University | 790 | 816 | NA | NA | NA | NA | NA | NA |
| Total, 1st 300 insts. | 9,521,071 | 8,895,058 | 8,106,536 | 7,264,380 | 6,637,603 | 5,997,827 | 5,370,975 | 4,935,834 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 7 of 10

| Institution ranking | Federally financed | | | | | | | |
|-------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 301 NE Ohio Univ Med School | 708 | 811 | 719 | 612 | 681 | 673 | 657 | 568 |
| 302 Baylor Col of Dentistry | 682 | 641 | 525 | 450 | 407 | 198 | 186 | 135 |
| 303 Texas A & I University | 661 | 1,118 | 847 | 742 | 640 | 538 | 436 | 334 |
| 304 CUNY York College | 655 | 754 | 673 | 559 | 634 | 708 | 483 | 541 |
| 305 Morgan State University | 655 | 638 | 742 | 346 | 860 | 751 | 645 | 539 |
| 306 Lincoln University (PA) | 632 | 692 | 789 | 591 | 394 | 197 | 0 | 0 |
| 307 De Paul University | 623 | 772 | 468 | 189 | 142 | 96 | 94 | 80 |
| 308 Western Michigan Univ | 585 | 488 | 391 | 227 | 306 | 196 | 217 | 94 |
| 309 Univ of Wis-Parkside | 581 | 651 | 497 | 465 | 433 | 401 | 369 | 337 |
| 310 CUNY Col Staten Island | 576 | 579 | 371 | 334 | 301 | 268 | 235 | 202 |
| Total, 1st 310 insts. | 9,527,429 | 8,902,202 | 8,112,558 | 7,268,895 | 6,642,401 | 6,001,853 | 5,374,297 | 4,938,664 |
| 311 Tougaloo College | 566 | 787 | NA | NA | NA | NA | NA | NA |
| 312 Santa Clara University | 550 | 672 | 712 | 746 | 642 | 843 | 790 | 855 |
| 313 Idaho State University | 549 | 378 | 226 | 268 | 341 | 307 | 327 | 230 |
| 314 Barnard College | 546 | 665 | 587 | 542 | 499 | 456 | 413 | 370 |
| 315 U Ctrl Del Caribe Esc Med | 546 | 640 | 525 | 577 | 809 | 165 | 0 | 0 |
| 316 Winston-Salem State Univ | 532 | 650 | NA | NA | NA | NA | NA | NA |
| 317 Canisius College | 524 | 194 | 279 | 243 | 211 | 179 | 147 | 115 |
| 318 SUNY College Buffalo | 520 | 583 | 641 | 699 | 757 | 815 | 873 | 931 |
| 319 St John's University (NY) | 519 | 361 | 308 | 290 | 274 | 258 | 138 | 97 |
| 320 Albany State College | 516 | 653 | 348 | 263 | 207 | 152 | 97 | 133 |
| Total, 1st 320 insts. | 9,532,797 | 8,907,785 | 8,116,184 | 7,272,523 | 6,646,141 | 6,005,028 | 5,377,082 | 4,941,395 |
| 321 Cal Poly St U San Luis Ob | 496 | 475 | 653 | 586 | 523 | 460 | 397 | 334 |
| 322 Bethune Cookman College | 494 | 420 | NA | NA | NA | NA | NA | NA |
| 323 Texas Woman's University | 476 | 325 | 243 | 173 | 209 | 211 | 137 | 212 |
| 324 Johnson C. Smith Univ | 467 | 480 | NA | NA | NA | NA | NA | NA |
| 325 Morris Brown College | 464 | 164 | NA | NA | NA | NA | NA | NA |
| 326 Southern Univ-New Orleans | 459 | 420 | NA | NA | NA | NA | NA | NA |
| 327 Hofstra University | 445 | 256 | 91 | 215 | 201 | 210 | 128 | 108 |
| 328 Alabama State University | 403 | 456 | NA | NA | NA | NA | NA | NA |
| 329 Coppin State College | 387 | 388 | NA | NA | NA | NA | NA | NA |
| 330 Phila Col of Pharm & Sci | 381 | 288 | 49 | 47 | 83 | 58 | 81 | 99 |
| Total, 1st 330 insts. | 9,537,269 | 8,911,457 | 8,117,220 | 7,273,544 | 6,647,157 | 6,005,967 | 5,377,825 | 4,942,148 |
| 331 Baylor University | 369 | 346 | 353 | 329 | 263 | 200 | 137 | 74 |
| 332 Calif St Poly Univ Pomona | 366 | 362 | 503 | 422 | 345 | 268 | 191 | 114 |
| 333 Bennett College | 358 | 229 | NA | NA | NA | NA | NA | NA |
| 334 Spelman College | 348 | 272 | NA | NA | NA | NA | NA | NA |
| 335 Alfred University | 344 | 449 | 285 | 382 | 349 | 435 | 129 | 184 |
| 336 Chicago Col of Osteo Med | 318 | 314 | 526 | 419 | 119 | 101 | 127 | 183 |
| 337 Indiana State University | 314 | 340 | 340 | 184 | 203 | 234 | 263 | 292 |
| 338 University of Portland | 311 | 0 | 200 | 160 | 120 | 80 | 401 | 0 |
| 339 Occidental College | 300 | 442 | 376 | 334 | 296 | 258 | 220 | 182 |
| 340 Smith College | 298 | 903 | 411 | 375 | 339 | 303 | 267 | 231 |
| Total, 1st 340 insts. | 9,540,595 | 8,915,114 | 8,120,214 | 7,276,149 | 6,649,191 | 6,007,846 | 5,379,199 | 4,943,421 |
| 341 SUNY College Brockport | 297 | 230 | 155 | 144 | 135 | 126 | 117 | 108 |
| 342 Adelphi University | 295 | 280 | 192 | 105 | 138 | 169 | 200 | 231 |
| 343 SUNY St Coll of Optometry | 294 | 292 | 286 | 398 | 344 | 292 | 240 | 188 |
| 344 New Sch For Soc Research | 293 | 251 | 384 | 422 | 298 | 174 | 50 | 45 |
| 345 Stephen F Austin St Univ | 289 | 332 | 283 | 233 | 308 | 382 | 456 | 163 |
| 346 Univ of Wis-Eau Claire | 268 | 355 | 254 | 218 | 182 | 146 | 110 | 74 |
| 347 Univ of Wis-Green Bay | 267 | 252 | 165 | 212 | 258 | 304 | 350 | 396 |
| 348 Pomona College | 266 | 370 | 358 | 435 | 512 | 589 | 666 | 743 |
| 349 Catholic U of PR | 265 | 492 | 416 | 513 | 508 | 504 | 500 | 551 |
| 350 Knox College | 261 | 239 | 164 | 145 | 126 | 107 | 88 | 69 |
| Total, 1st 350 insts. | 9,543,390 | 8,918,207 | 8,122,871 | 7,278,974 | 6,652,000 | 6,010,639 | 5,381,976 | 4,945,989 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 8 of 10

| Institution ranking | Federally financed | | | | | | | |
|-------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 351 University of Detroit | 245 | 55 | 34 | 821 | 1291 | 1761 | 2231 | 270 |
| 352 Pacific Lutheran Univ | 244 | 10 | 35 | 431 | 441 | 451 | 461 | 471 |
| 353 Univ of Wis-Oshkosh | 238 | 161 | 147 | 1271 | 1091 | 911 | 731 | 55 |
| 354 Northeast Louisiana Univ | 231 | 56 | 35 | 25 | 6 | 9 | 14 | 15 |
| 355 Oakwood College | 226 | 0 | NA | NA | NA | NA | NA | NA |
| 356 Savannah State College | 221 | 179 | NA | NA | NA | NA | NA | NA |
| 357 Duguesne University | 216 | 68 | 68 | 68 | 541 | 451 | 361 | 271 |
| 358 Univ of West Florida | 213 | 327 | 436 | 7091 | 9821 | 1,2551 | 1,5281 | 1,801 |
| 359 CUNY Bernard Baruch Col | 207 | 287 | 125 | 1251 | 1251 | 1251 | 1251 | 1251 |
| 360 Claflin College | 203 | 0E | NA | NA | NA | NA | NA | NA |
| Total, 1st 360 insts. | 9,545,634 | 8,919,350 | 8,123,751 | 7,280,153 | 6,653,449 | 6,012,385 | 5,384,021 | 4,948,329 |
| 361 SUNY College Geneseo | 200 | 151 | 173 | 1421 | 1111 | 801 | 491 | 18 |
| 362 North Carolina Cntrl Univ | 199 | 422E | 350 | 3171 | 2861 | 2551 | 2241 | 1931 |
| 363 Kirtsville Col Osteo Med | 198 | 306 | 5171 | 727 | 6411 | 5621 | 4831 | 4041 |
| 364 Univ of Nebraska at Omaha | 187 | 62 | 56 | 75 | 24 | 1 | 0 | 2 |
| 365 Univ of Wis-La Crosse | 185 | 108 | 79 | 116 | 70 | 227 | 218 | 188 |
| 366 Grambling State Univ | 182 | 106 | 64 | 128 | 1311 | 1321 | 1331 | 1341 |
| 367 Columbia U Teachers Col | 181 | 230 | 186 | 460 | 3671 | 2741 | 1811 | 88 |
| 368 Sul Ross State University | 171 | 98 | 107 | 961 | 871 | 781 | 691 | 60 |
| 369 Univ of Wis-Stevens Point | 167 | 226 | 180 | 2081 | 2361 | 2641 | 2921 | 320 |
| 370 Rust College | 156 | 214 | NA | NA | NA | NA | NA | NA |
| Total, 1st 370 insts. | 9,547,460 | 8,921,273 | 8,125,463 | 7,282,422 | 6,655,402 | 6,014,258 | 5,385,670 | 4,949,736 |
| 371 Fayetteville State Univ | 154 | 258 | NA | NA | NA | NA | NA | NA |
| 372 Ball State University | 153 | 178 | 197 | 317 | 293 | 272 | 209 | 207 |
| 373 St Olaf College | 151 | 97 | 153 | 1661 | 1781 | 1901 | 2021 | 214 |
| 374 Augsburg College | 139 | 115 | 90 | 801 | 711 | 621 | 531 | 441 |
| 375 West Virginia State Col | 138 | 75 | NA | NA | NA | NA | NA | NA |
| 376 Univ of Northern Iowa | 136 | 108 | 91 | 741 | 591 | 441 | 291 | 14 |
| 377 Southern Univ-Shreveport | 131 | 148 | NA | NA | NA | NA | NA | NA |
| 378 Univ of Wis-Stout | 121 | 39 | 82 | 631 | 481 | 331 | 181 | 3 |
| 379 Philander Smith College | 120 | 154 | NA | NA | NA | NA | NA | NA |
| 380 Arkansas State University | 119 | 83 | 46 | 611 | 731 | 851 | 971 | 1091 |
| Total, 1st 380 insts. | 9,548,822 | 8,922,528 | 8,126,122 | 7,283,183 | 6,656,124 | 6,014,944 | 5,386,278 | 4,950,327 |
| 381 Univ of Missouri Sys Off | 116 | 678 | 756 | 858 | 759 | 627 | 382 | 431 |
| 382 East Texas State Univ | 113 | 89 | 1 | 12 | 8 | 0 | 0 | 0 |
| 383 SUNY College New Paltz | 112 | 54 | 1 | 103 | 851 | 671 | 491 | 31 |
| 384 Abilene Christian Univ | 103 | 89 | 66 | 561 | 471 | 381 | 291 | 20 |
| 385 Andrews University | 96 | 24 | 23E | 201 | 191 | 181 | 171 | 16 |
| 386 Sam Houston State Univ | 93 | 84 | 73 | 115 | 114 | 95 | 177 | 88 |
| 387 Tarleton State University | 88 | 0 | 0 | 0 | 01 | 01 | 0 | 12 |
| 388 US International Univ | 88 | 61 | 0 | 0 | 0 | 01 | 0 | 0 |
| 389 Phila Col Osteopathic Med | 83 | 302 | 179 | 168 | 71 | 351 | 0 | 0 |
| 390 Jarvis Christian College | 75 | 60 | NA | NA | NA | NA | NA | NA |
| Total, 1st 390 insts. | 9,549,789 | 8,923,969 | 8,127,221 | 7,284,515 | 6,657,227 | 6,015,824 | 5,386,932 | 4,950,925 |
| 391 SUNY College Cortland | 75 | 102 | 76 | 671 | 581 | 491 | 401 | 31 |
| 392 SUNY College Fredonia | 74 | 981 | 121 | 1011 | 831 | 651 | 471 | 29 |
| 393 Chapman College | 72 | 75E | 75 | 601 | 481 | 361 | 241 | 121 |
| 394 SUNY College Oswego | 71 | 75 | 58 | 236 | 2291 | 223 | 187 | 1391 |
| 395 Northeastern Ill Univ | 68 | 26 | 0 | 131 | 321 | 311 | 401 | 49 |
| 396 Central Michigan Univ | 60 | 179 | 276 | 134 | 110 | 0 | 111 | 30 |
| 397 Long Island University | 57 | 191 | 346 | 247 | 64 | 11 | 19 | 17 |
| 398 Knoxville College | 551 | 50 | NA | NA | NA | NA | NA | NA |
| 399 Univ of Northern Colorado | 54 | 66 | 0 | 10 | 0 | 0 | 0 | 0 |
| 400 Seattle University | 52 | 74 | 64 | 0 | 51 | 10E | 0 | 01 |
| Total, 1st 400 insts. | 9,550,427 | 8,924,906 | 8,128,239 | 7,285,383 | 6,657,846 | 6,016,249 | 5,387,400 | 4,951,232 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table 8-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 9 of 10

| Institution ranking | Federally financed | | | | | | | |
|--------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 401 Claremont Univ Ctr & Grad | 47 | 106 | 337 | 343 | 354 | 364 | 374 | 384 |
| 402 Monmouth College (NJ) | 46 | 100 | 0 | 01 | 01 | 01 | 01 | 0 |
| 403 Miss Valley State Univ | 43 | 14 | 31 | 0 | 01 | 01 | 0 | 0 |
| 404 Southern Oregon St Col | 43 | 56 | 0 | 0 | 0 | 2 | 8 | 35 |
| 405 Univ Osteo Med & Hlth Sci | 43 | 86 | 88 | 0 | 01 | 01 | 0 | 0 |
| 406 Univ of Wis-Whitewater | 42 | 107 | 37 | 281 | 211 | 141 | 71 | 0 |
| 407 West Texas State Univ | 40 | 120 | 124 | 177 | 66 | 76 | 132 | 112 |
| 408 Kutztown Univ of Penn | 37 | 37 | 31 | 351 | 391 | 431 | 471 | 511 |
| 409 Bowie State University | 35 | 0 | NA | NA | NA | NA | NA | NA |
| 410 Goucher College | 32 | 27 | 25 | 331 | 371 | 411 | 451 | 491 |
| Total, 1st 410 insts. | 9,550,835 | 8,925,559 | 8,128,912 | 7,285,999 | 6,658,363 | 6,016,789 | 5,388,013 | 4,951,863 |
| 411 Univ of Wis-River Falls | 27 | 43 | 35 | 281 | 231 | 181 | 131 | 8 |
| 412 W VA Schl Osteopathic Med | 23 | 30 | 22 | 11 | 51 | 0 | 0 | 01 |
| 413 SUNY College Oneonta | 22 | 0 | 0 | 171 | 311 | 451 | 591 | 73 |
| 414 SUNY College Potsdam | 22 | 27 | 11 | 251 | 331 | 411 | 491 | 571 |
| 415 Northeast Missouri St U | 18 | 122 | 38 | 50 | 251 | 0 | 81 | 141 |
| 416 Elizabeth City State Univ | 15 | 26 | NA | NA | NA | NA | NA | NA |
| 417 Colorado College | 5 | 0 | 0 | 111 | 161 | 211 | 261 | 311 |
| 418 Trenholm State Tech Col | 5 | 5 | NA | NA | NA | NA | NA | NA |
| 419 Drake University | 3 | 12 | 21 | 261 | 301 | 341 | 381 | 42 |
| 420 Antioch University | 0 | 0 | 0 | 11 | 21 | 31 | 41 | 5E |
| Total, 1st 420 insts. | 9,550,975 | 8,925,824 | 8,129,039 | 7,286,168 | 6,658,528 | 6,016,951 | 5,388,210 | 4,952,093 |
| 421 Bemidji State University | 0 | 11 | 14 | 81 | 61 | 41 | 21 | 0 |
| 422 Benedict College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 423 Biola University | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 424 Cal Sch Prof Psych-Berkly | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 425 Cal Sch Prof Psych-S D | 01 | 0 | 0 | 0 | 01 | 0 | 0 | 0 |
| 426 Calif St Univ Stanislaus | 0 | 0 | 0 | 01 | 01 | 01 | 01 | 0 |
| 427 Cheyney University of PA | 0 | 0E | NA | NA | NA | NA | NA | NA |
| 428 Clark Atlanta University | 01 | 0E | NA | NA | NA | NA | NA | NA |
| 429 Col Osteo Med of Pacific | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 430 Dillard University | 0 | 0 | 0 | 0 | 01 | 01 | 0 | 0 |
| Total, 1st 430 insts. | 9,550,975 | 8,925,835 | 8,129,053 | 7,286,176 | 6,658,534 | 6,016,955 | 5,388,212 | 4,952,093 |
| 431 East Stroudsburg U of PA | 0 | 165 | 107 | 901 | 751 | 601 | 451 | 301 |
| 432 Fielding Institute | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 433 Fuller Theological Sem | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 0 |
| 434 Grand Valley State Univ | 0 | 7 | 0 | 51 | 101 | 151 | 201 | 25 |
| 435 Institute of Textile Tech | 0 | 0 | 0 | 0 | 01 | 01 | 01 | 01 |
| 436 Mass Col Phar/Allied Hlth | 01 | 0 | 51 | 91 | 131 | 171 | 211 | 25 |
| 437 Mayo Grad School of Med | 0 | 0 | 0 | 0 | 01 | 01 | 0 | 0 |
| 438 Milwaukee School of Eng | 0 | 0 | 0 | 01 | 01 | 01 | 01 | 01 |
| 439 Montclair State College | 0 | 0 | 11 | 91 | 101 | 111 | 121 | 131 |
| 440 New York Inst Technology | 0 | 0 | 352 | 373 | 4421 | 510 | 771 | 228 |
| Total, 1st 440 insts. | 9,550,975 | 8,926,010 | 8,129,518 | 7,286,662 | 6,659,093 | 6,017,568 | 5,389,081 | 4,952,414 |
| 441 Northwestern St Univ La | 0 | 0 | 0 | 21 | 31 | 41 | 51 | 61 |
| 442 Oral Roberts University | 0 | 290 | 388 | 3781 | 3691 | 360 | 0 | 0 |
| 443 Paul Quinn College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 444 Providence College | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 01 |
| 445 Rand Grad Inst Pol Studies | 0 | 0 | 0 | 0 | 01 | 0 | 01 | 0 |
| 446 Shaw University | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 447 Slippery Rock Univ of PA | 0 | 0 | 0 | 01 | 01 | 01 | 01 | 0 |
| 448 St Bonaventure University | 0 | 0 | 01 | 0 | 01 | 01 | 0 | 0 |
| 449 St Louis Community Col | 0 | 0 | 0 | 01 | 01 | 01 | 01 | 0 |
| 450 Stillman College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| Total, 1st 450 insts. | 9,550,975 | 8,926,300 | 8,129,906 | 7,287,042 | 6,659,465 | 6,017,932 | 5,389,086 | 4,952,420 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-33. Federally financed R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 10 of 10

| Institution ranking | Federally financed | | | | | | | |
|------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 451 Talladega College | 0 | 350 | NA | NA | NA | NA | NA | NA |
| 452 The Wright Institute | 0 | 0 | 0 | 0 | 0 | 1991 | 3981 | 5971 |
| 453 U of California System | 0 | 0 | 473 | 528 | 547 | 524 | 465 | 364 |
| 454 Union Institute | 0 | 0 | 0 | 0 | 01 | 01 | 0 | 0 |
| 455 Univ of Health Sciences | 0 | 0 | 0 | 0 | 01 | 01 | 0 | 0 |
| 456 Univ of Wis-Platteville | 0 | 0 | 0 | 11 | 11 | 11 | 11 | 1 |
| 457 Voorhees College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 458 Wiley College | 0 | 0 | NA | NA | NA | NA | NA | NA |
| 459 Xavier University | 0 | 0 | 0 | 451 | 881 | 1311 | 1741 | 2171 |
| Total, 1st 459 insts. | 9,550,975 | 8,926,650 | 8,130,379 | 7,287,616 | 6,660,101 | 6,018,787 | 5,390,124 | 4,953,599 |
| Total, all other sampled insts. | 0 | 0 | 50,867 | 45,460 | 42,560 | 37,732 | 33,685 | 29,617 |
| Estimated total non-sampled insts. | 60,070 | 57,336 | 0 | 0 | 0 | 0 | 0 | 0 |

1/ Includes Applied Physics Laboratory with \$406 million in federally financed R&D expenditures.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

66

Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 1 of 4

| Institution ranking | Non-Federal | | | | | | | |
|------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| Total, all institutions | 6,713,565 | 6,025,098 | 5,282,622 | 4,821,173 | 4,223,566 | 3,630,443 | 3,193,373 | 2,894,041 |
| 1 Texas A & M University | 179,799 | 157,122 | 140,998 | 144,421 | 131,416E | 113,553E | 104,196E | 93,072E |
| 2 University of Minnesota | 148,236 | 125,734 | 116,326 | 113,378 | 101,435 | 85,546 | 78,734 | 71,804 |
| 3 Univ of Wis-Madison | 130,979 | 116,530 | 109,034 | 104,828 | 92,315 | 84,436 | 73,486 | 68,256 |
| 4 University of Michigan | 130,122 | 106,030 | 89,315 | 87,332 | 69,790 | 57,566 | 56,646 | 48,744 |
| 5 Cornell University | 128,895 | 128,749 | 117,997 | 109,367 | 90,740 | 83,907 | 68,683 | 63,138 |
| 6 Univ of Cal Davis | 120,651 | 107,579 | 91,220 | 87,176 | 75,239 | 67,210 | 60,355 | 54,679 |
| 7 Pennsylvania State Univ | 120,270 | 105,284 | 82,424 | 72,641 | 63,858 | 43,097 | 34,617 | 32,892 |
| 8 Univ of Texas at Austin | 118,610 | 99,026 | 82,626 | 80,536 | 70,172 | 61,628 | 58,182 | 52,339 |
| 9 University of Georgia | 112,878 | 103,156 | 97,989 | 89,181 | 79,561 | 62,850 | 57,248 | 48,231 |
| 10 Univ of Ill Urbana | 110,572 | 96,192 | 87,760 | 84,262 | 74,951 | 59,027 | 48,016 | 39,329 |
| Total, 1st 10 insts. | 1,301,012 | 1,145,402 | 1,015,689 | 973,122 | 849,477 | 718,820 | 640,163 | 572,484 |
| 11 University of Arizona | 102,713 | 93,586 | 82,155 | 73,702 | 62,817 | 54,071 | 47,535 | 44,451 |
| 12 Ohio State University | 99,691 | 98,001 | 85,517 | 64,691 | 56,205 | 50,110 | 41,342 | 39,422 |
| 13 Univ of MD College Park | 99,612 | 90,586 | 80,166 | 71,045 | 57,881 | 52,540 | 47,028 | 46,420E |
| 14 Univ of Cal Berkeley | 99,344 | 85,596 | 69,807 | 66,445 | 56,412 | 53,121 | 46,158 | 42,034 |
| 15 Rutgers the St Univ of NJ | 97,008 | 88,678 | 75,946 | 67,377 | 55,835 | 35,445 | 31,584 | 30,835 |
| 16 N C State Univ at Raleigh | 87,346 | 85,658 | 76,030 | 68,985 | 61,844 | 59,767 | 50,156 | 36,623 |
| 17 Louisiana State Univ | 87,047 | 82,243 | 79,120 | 70,981 | 63,901 | 64,194 | 53,858 | 51,622 |
| 18 Univ of Cal Los Angeles | 82,353 | 68,826 | 62,392 | 58,066 | 48,490 | 40,055 | 35,610 | 29,567 |
| 19 Iowa St U of Sci & Tech | 81,902 | 74,279 | 63,420 | 58,669 | 55,266 | 51,246 | 41,717 | 43,811 |
| 20 Baylor Col of Medicine | 79,329 | 65,345 | 45,989 | 40,345 | 22,264 | 21,448 | 19,368 | 18,214 |
| Total, 1st 20 insts. | 2,217,537 | 1,978,200 | 1,736,231 | 1,613,430 | 1,388,392 | 1,200,817 | 1,054,519 | 955,483 |
| 21 Mass Inst of Technology | 77,954 | 72,017 | 60,165 | 57,631 | 56,629 | 53,031 | 47,196 | 37,548 |
| 22 VA Polytech Inst & St U | 75,474 | 65,669 | 56,184 | 48,423 | 45,191 | 36,316 | 30,023 | 27,396 |
| 23 University of Florida | 75,064 | 65,039 | 52,392 | 54,934 | 48,776 | 49,267 | 45,111 | 37,759 |
| 24 Georgia Institute of Tech | 73,351 | 76,616 | 64,253 | 57,210 | 47,025 | 40,096 | 37,266 | 33,391 |
| 25 Northwestern University | 70,167 | 61,481 | 48,510 | 39,634 | 33,423 | 30,020 | 27,537 | 14,556 |
| 26 University of Connecticut | 69,872 | 63,144 | 50,677 | 44,691 | 38,145 | 36,211 | 24,575 | 23,942 |
| 27 Johns Hopkins Univ | 69,064 | 58,211 | 48,007 | 34,606 | 28,130 | 31,577 | 19,032 | 20,729E |
| 28 Michigan State University | 68,766 | 69,715 | 66,549 | 66,821 | 53,136 | 45,910 | 41,293 | 35,976 |
| 29 Univ. Of Tennessee System | 68,142 | 67,057 | 58,761 | 54,618 | 43,680 | 40,722 | 29,576 | 27,648 |
| 30 Harvard University | 66,722 | 66,068 | 57,426 | 49,119 | 42,887 | 34,507E | 30,900E | 28,778E |
| Total, 1st 30 insts. | 2,931,933 | 2,643,217 | 2,299,155 | 2,121,117 | 1,825,414 | 1,598,474 | 1,387,028 | 1,245,206 |
| 31 Purdue University | 65,915 | 60,344 | 54,634 | 50,829 | 45,651 | 40,324 | 39,954 | 33,363 |
| 32 Univ of Cal San Francisco | 63,021 | 59,540 | 55,542 | 52,134 | 42,091 | 35,733 | 30,582 | 22,212 |
| 33 UT MD Anderson Cancer Ctr | 62,394 | 56,911 | 48,513 | 43,255 | 42,014 | 36,729 | 32,938 | 29,397 |
| 34 Univ of Missouri Columbia | 59,889 | 51,743 | 46,195 | 40,962 | 37,585 | 32,188 | 28,750 | 28,088 |
| 35 Univ of Pennsylvania | 55,643 | 49,934 | 44,138 | 47,149 | 46,821 | 37,504 | 32,132 | 32,983 |
| 36 Univ of Nebraska-Lincoln | 54,912 | 42,478 | 35,340 | 31,554 | 34,335 | 30,653 | 28,725 | 31,847 |
| 37 Univ of Cal San Diego | 54,477 | 45,512 | 40,694 | 40,296 | 32,804 | 29,918 | 25,638 | 23,575 |
| 38 Stanford University | 54,254I | 47,344 | 44,932 | 36,499 | 31,086 | 26,762 | 25,155 | 22,573 |
| 39 Clemson University | 52,443 | 44,215 | 36,227 | 37,479 | 31,413 | 22,361 | 23,232 | 19,821 |
| 40 Auburn University | 52,166 | 38,635 | 34,494 | 34,599 | 36,037 | 26,042 | 21,529 | 18,093 |
| Total, 1st 40 insts. | 3,507,047 | 3,139,873 | 2,739,864 | 2,535,873 | 2,205,251 | 1,916,688 | 1,675,663 | 1,507,158 |
| 41 Oklahoma State University | 47,941 | 39,539 | 43,786 | 37,845 | 37,417 | 37,261 | 39,557 | 34,018I |
| 42 Univ of South Florida | 45,923 | 34,397 | 31,555 | 30,743 | 4,363 | 3,641 | 3,350 | 2,959 |
| 43 Univ of Massachusetts | 45,794 | 54,139 | 40,978 | 35,558 | 34,001 | 27,227 | 24,020 | 21,363 |
| 44 Washington University | 45,490 | 31,590 | 28,986 | 25,662 | 21,827 | 19,183 | 19,855 | 15,007 |
| 45 Univ of Southern Cal | 45,388 | 43,008 | 37,394 | 33,246 | 23,493 | 20,857 | 23,039 | 26,419 |
| 46 University of Kentucky | 45,347 | 42,522 | 41,279 | 28,781 | 32,034 | 30,890 | 29,136 | 27,043 |
| 47 Univ of MD Balt Prof Sch | 44,848 | 39,884 | 35,685 | 31,687 | 15,199 | 12,359I | 9,520I | 6,681I |
| 48 SUNY at Buffalo | 42,314 | 35,838 | 27,538 | 19,262 | 17,096 | 14,185 | 13,294 | 11,714 |
| 49 University of Washington | 41,960 | 39,259 | 30,474 | 41,878 | 44,599 | 28,132 | 27,162 | 25,011 |
| 50 University of Oklahoma | 41,774 | 36,936 | 33,721 | 30,897 | 23,065 | 25,061 | 24,126 | 26,781 |
| Total, 1st 50 insts. | 3,953,826 | 3,536,985 | 3,091,260 | 2,851,432 | 2,458,345 | 2,135,484 | 1,888,722 | 1,704,154 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 2 of 4

| Institution ranking | Non-Federal | | | | | | | |
|------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 51 Univ of Ill Chicago | 41,300 | 40,041 | 35,662 | 30,131 | 24,737 | 22,377 | 19,715 | 19,948 |
| 52 Oregon State University | 40,144 | 42,243 | 40,076 | 36,012 | 36,861 | 33,651 | 26,838 | 27,193 |
| 53 Washington State Univ | 39,972 | 32,476 | 29,958 | 27,591 | 26,277 | 25,311 | 25,396 | 24,315 |
| 54 Princeton University | 39,955 | 35,738 | 29,646 | 21,584 | 15,590 | 15,135 | 13,130 | 11,990 |
| 55 Univ of Cal Riverside | 39,086 | 37,629 | 36,311 | 36,157 | 33,255 | 30,369 | 27,106 | 25,634 |
| 56 Rockefeller University | 38,457 | 32,753 | 31,136 | 28,777 | 27,478 | 29,112 | 20,640 | 28,375 |
| 57 Univ. of Colorado | 38,329 | 36,575 | 31,974 | 29,132 | 29,689 | 24,057 | 26,353 | 20,770 |
| 58 University of Virginia | 38,014 | 30,067 | 27,090 | 22,594 | 18,931 | 16,501 | 9,868 | 9,056 |
| 59 Mississippi State Univ | 37,066 | 35,976 | 31,449 | 28,018 | 31,032 | 30,225 | 28,100 | 27,939 |
| 60 University of Iowa | 36,732 | 31,629 | 30,182 | 21,931 | 21,099 | 16,864 | 15,302 | 14,311 |
| Total, 1st 60 insts. | 4,342,881 | 3,890,112 | 3,414,744 | 3,133,359 | 2,723,294 | 2,379,086 | 2,109,170 | 1,913,685 |
| 61 Univ Alabama Birmingham | 36,117 | 32,462 | 22,661 | 18,158 | 14,064 | 8,137 | 8,024 | 5,802 |
| 62 Yale University | 35,744 | 32,304 | 29,236 | 28,875 | 28,472 | 18,323 | 17,802 | 15,064 |
| 63 Carnegie-Mellon Univ | 35,651 | 34,556 | 31,042 | 29,946 | 30,214 | 22,626 | 20,368 | 12,628 |
| 64 Kans St U - Ag & App Sci | 34,660 | 31,351 | 28,880 | 27,317 | 27,739 | 26,812 | 24,832 | 24,862 |
| 65 Duke University | 34,655 | 32,054 | 27,728 | 21,631 | 15,952 | 12,462 | 10,232 | 8,232 |
| 66 University of Kansas | 34,358 | 30,691 | 26,843 | 27,662 | 26,016 | 21,290 | 16,564 | 11,838 |
| 67 Wayne State University | 33,967 | 31,354 | 27,793 | 22,408 | 17,800 | 12,259 | 11,421 | 11,277 |
| 68 Univ of Hawaii-Manoa | 33,860 | 30,159 | 25,718 | 22,873 | 22,061 | 19,139 | 18,350 | 17,768 |
| 69 Univ of Alaska Fairbanks | 33,675 | 30,062 | 26,415E | 25,909 | 25,401 | 24,893 | 24,385 | 23,877 |
| 70 University of New Mexico | 32,279 | 29,036 | 22,867E | 20,668E | 14,046 | 12,541 | 9,819 | 9,414 |
| Total, 1st 70 insts. | 4,687,847 | 4,206,121 | 3,683,927 | 3,378,806 | 2,945,059 | 2,557,568 | 2,270,967 | 2,054,447 |
| 71 Arizona State University | 32,062 | 21,893 | 20,504 | 24,754 | 20,039 | 16,397 | 13,017 | 12,006 |
| 72 Indiana University | 32,036 | 23,459 | 21,028 | 21,130 | 19,136 | 17,269 | 15,080 | 14,449 |
| 73 Univ of Med & Dent of N J | 31,044 | 26,468 | 20,178 | 15,233 | 14,482 | 8,768 | 7,552 | 7,375 |
| 74 UT SW Medical Ctr-Dallas | 30,954 | 28,666 | 22,035 | 17,525 | 14,115 | 12,584 | 13,286 | 9,895 |
| 75 Univ of NC at Chapel Hill | 30,645 | 28,817 | 24,316 | 21,225 | 20,829 | 20,212 | 9,530 | 7,508 |
| 76 Emory University | 30,407 | 18,216 | 17,228 | 22,191 | 18,296 | 4,570 | 4,626 | 4,121 |
| 77 Florida State University | 30,006 | 29,767 | 26,652 | 25,004 | 22,329 | 18,059 | 17,786 | 11,957 |
| 78 University of Cincinnati | 29,495 | 29,233 | 24,493 | 21,760 | 16,610 | 17,785 | 17,397 | 15,121 |
| 79 Tulane University | 28,076 | 21,100 | 18,892 | 16,557 | 16,451 | 13,673 | 11,625 | 11,219 |
| 80 New York University | 27,755 | 23,308 | 23,126 | 22,798 | 23,688 | 23,329 | 19,390 | 18,684 |
| Total, 1st 80 insts. | 4,990,327 | 4,457,028 | 3,902,379 | 3,586,983 | 3,131,034 | 2,710,214 | 2,400,256 | 2,166,782 |
| 81 Utah State University | 27,485 | 27,495 | 24,510 | 19,234 | 19,537 | 15,810 | 16,659 | 17,653 |
| 82 West Virginia University | 27,091 | 21,907 | 14,377 | 13,577 | 10,668 | 9,946 | 8,958 | 9,176 |
| 83 University of Pittsburgh | 27,016 | 30,048 | 26,147 | 22,123 | 18,254 | 15,082 | 12,872 | 10,979 |
| 84 Univ of South Carolina | 26,890 | 22,825 | 16,181 | 15,121 | 14,246 | 11,960 | 8,496 | 6,371 |
| 85 University of Utah | 26,721 | 21,521 | 18,406 | 13,968 | 9,050 | 8,790 | 8,810 | 8,849 |
| 86 Columbia Univ Main Div | 26,499 | 25,433 | 21,418 | 16,886 | 16,980 | 16,457 | 16,418 | 13,273 |
| 87 SUNY at Stony Brook | 26,325 | 29,729 | 25,393 | 14,548 | 18,948E | 15,549 | 13,802 | 11,302 |
| 88 University of Miami | 26,200 | 27,197 | 21,812 | 27,106 | 27,623 | 25,218 | 20,413 | 16,047 |
| 89 Univ of Ark Fayetteville | 26,132 | 23,887 | 19,911 | 19,739 | 19,954 | 16,402 | 15,212 | 14,625 |
| 90 Univ of Cal Irvine | 25,582 | 20,314 | 17,206 | 13,553 | 11,651 | 9,686 | 7,094 | 5,809 |
| Total, 1st 90 insts. | 5,256,268 | 4,707,384 | 4,107,740 | 3,762,838 | 3,297,945 | 2,855,114 | 2,528,990 | 2,280,866 |
| 91 SUNY Hlth Sci Ctr - Syrac | 25,228 | 21,605 | 17,044 | 14,759 | 12,884 | 13,206 | 11,776 | 10,486 |
| 92 Unif Serv Univ of Hlth Sc | 24,792 | 14,356 | 3,378 | 0 | 100 | 83 | 0 | 0 |
| 93 Rensselaer Polytech Inst | 24,554 | 20,042 | 18,191 | 10,960 | 8,237 | 7,456 | 7,345 | 11,030 |
| 94 Texas Tech University | 24,447 | 22,482 | 17,102 | 16,707 | 14,567 | 9,531 | 9,233 | 8,935 |
| 95 University of Rochester | 23,367 | 22,948 | 21,528 | 21,276 | 19,885 | 22,586 | 18,955 | 16,561 |
| 96 Temple University | 23,285 | 20,250 | 20,804 | 17,661 | 14,037 | 8,270 | 6,921 | 6,065 |
| 97 Colorado State University | 23,223 | 17,779 | 14,769 | 13,658 | 12,767 | 15,469 | 16,397 | 16,251 |
| 98 Case Western Reserve Univ | 22,869 | 17,536 | 18,225 | 17,270 | 10,498E | 9,416 | 7,880 | 7,728 |
| 99 University of Delaware | 22,531 | 20,111 | 18,315 | 18,019 | 16,220 | 12,979 | 10,532 | 9,497 |
| 100 University of Chicago | 21,628 | 18,970 | 17,574 | 15,990 | 14,722 | 12,979 | 13,012 | 13,329 |
| Total, 1st 100 insts. | 5,492,192 | 4,903,463 | 4,274,670 | 3,909,227 | 3,421,862 | 2,967,089 | 2,631,041 | 2,380,748 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 3 of 4

| Institution ranking | Non-Federal | | | | | | | |
|----------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 101 Univ of Central Florida | 21,264 | 19,838 | 7,831 | 6,870I | 5,909E | 4,611 | 4,808I | 5,006 |
| 102 University of Idaho | 21,124 | 19,672 | 19,108 | 15,350 | 14,081 | 6,804 | 6,572 | 5,957 |
| 103 Virginia Commonwealth Univ | 21,124 | 17,042 | 11,801 | 11,234 | 11,487 | 8,405 | 5,103 | 4,237E |
| 104 U of Houston | 20,403 | 17,871 | 12,651 | 13,338 | 12,373 | 6,766 | 5,935 | 6,100 |
| 105 CUNY Mt Sinai Sch of Med | 20,145 | 19,623 | 16,875 | 15,113 | 14,027 | 13,753 | 9,862 | 7,974 |
| 106 U Tex Med Brnch Galveston | 18,917 | 15,565 | 13,330 | 1,613 | 8,005I | 8,397 | 7,920 | 8,583 |
| 107 Yeshiva University | 18,902 | 16,272 | 16,560 | 14,005 | 13,338 | 10,862 | 7,399 | 7,710 |
| 108 Montana State University | 18,596 | 17,187 | 14,517 | 14,366I | 14,215 | 12,643 | 14,470 | 12,587 |
| 109 Southern Ill U-Carbondale | 17,838 | 16,786 | 13,494 | 12,609 | 13,170 | 12,703 | 10,864 | 6,311 |
| 110 N Mex Inst Mining & Tech | 17,301 | 15,106 | 14,865 | 14,786 | 9,666 | 7,318I | 4,969 | 3,951I |
| Total, 1st 110 insts. | 5,687,806 | 5,078,425 | 4,415,702 | 4,034,511 | 3,538,133 | 3,059,351 | 2,708,943 | 2,449,164 |
| 111 SUNY Col of Env Sci & For | 16,698 | 15,338 | 11,248 | 10,481 | 9,870I | 9,259 | 7,988I | 6,720I |
| 112 U Tex Hlth Sci Ctr Houstn | 16,690 | 17,360 | 15,687 | 10,431 | 9,960 | 7,543 | 5,794 | 4,952 |
| 113 New Mexico State Univ | 16,600 | 15,270 | 17,520 | 20,768 | 18,523 | 16,963 | 12,487 | 10,829 |
| 114 U Tex Hlth Sci Ctr S Anto | 16,232 | 13,777 | 12,145 | 15,007 | 10,386 | 10,148 | 9,361 | 8,738 |
| 115 Univ of P R-Mayaguez | 16,218 | 15,229 | 14,212 | 15,759 | 14,545I | 13,333I | 12,121I | 10,909I |
| 116 Lehigh University | 16,013 | 16,079 | 16,792 | 15,214 | 13,212 | 11,175 | 8,885 | 8,080 |
| 117 Univ of Rhode Island | 15,335 | 14,279 | 12,973 | 8,080 | 7,872I | 7,664 | 6,400 | 3,500I |
| 118 Rush University | 15,201 | 14,159 | 13,274 | 8,519 | 6,778 | 4,644 | 3,773 | 4,985 |
| 119 California Inst of Tech | 15,153 | 14,564 | 13,780 | 15,479 | 15,068 | 9,005 | 7,019 | 6,484 |
| 120 Syracuse University | 14,887 | 15,176 | 11,266 | 12,361 | 11,490 | 11,528 | 8,143 | 7,661 |
| Total, 1st 120 insts. | 5,846,833 | 5,229,056 | 4,554,599 | 4,163,610 | 3,655,837 | 3,160,613 | 2,788,914 | 2,522,022 |
| 121 Georgetown University | 14,774 | 16,246 | 14,117 | 11,504 | 9,360 | 10,991 | 9,561 | 8,255 |
| 122 U of VT & State Agr Coll | 14,607 | 14,208 | 11,276 | 9,258 | 9,851 | 8,649 | 7,336 | 5,955 |
| 123 Univ of Maine Orono | 14,559 | 11,686 | 10,293 | 9,165 | 10,731 | 9,968 | 8,663 | 11,141 |
| 124 The University of Alabama | 14,547 | 11,853 | 9,460 | 8,223E | 7,766 | 4,557 | 3,430I | 2,304I |
| 125 Oregon Hlth Sciences Univ | 14,179 | 10,935 | 11,269 | 10,683 | 8,177 | 6,857 | 5,573 | 5,548 |
| 126 Dartmouth College | 13,602 | 11,230 | 9,834 | 9,363 | 7,251I | 5,139I | 3,027 | 3,617 |
| 127 Drexel University | 13,318 | 11,012 | 9,445 | 7,933 | 7,612 | 6,194 | 3,680 | 1,605 |
| 128 U of MD Center For EES | 13,273 | 11,222 | 10,140 | 9,400 | 7,515 | 2,747 | 2,324 | 2,220 |
| 129 Boston University | 13,196 | 9,923 | 9,587 | 8,893 | 7,768 | 5,878 | 4,996 | 4,515 |
| 130 Medical College of Wis | 13,028 | 13,519 | 13,428 | 14,667 | 7,756 | 7,587 | 6,867I | 6,148I |
| Total, 1st 130 insts. | 5,985,916 | 5,351,490 | 4,663,448 | 4,262,699 | 3,739,624 | 3,229,180 | 2,844,371 | 2,573,330 |
| 131 N J Inst of Technology | 12,494 | 10,320 | 7,242 | 9,571 | 7,639 | 3,213 | 1,391 | 1,151 |
| 132 Univ of Cal Santa Cruz | 12,492 | 11,108 | 9,900 | 10,790 | 7,166 | 7,326 | 5,938 | 4,564 |
| 133 Med Univ of So Carolina | 12,218 | 11,470 | 9,993 | 8,861 | 8,981 | 4,590 | 3,758 | 2,718 |
| 134 Brandeis University | 12,062 | 11,516 | 8,023 | 6,954I | 5,887I | 4,820 | 5,179 | 2,499 |
| 135 Univ of Cal Santa Barbara | 11,877 | 10,840 | 10,393 | 9,848 | 9,196 | 6,924 | 5,852 | 5,021 |
| 136 Univ of New Hampshire | 11,539 | 9,126 | 8,747 | 6,932 | 7,150 | 8,096 | 7,014 | 6,408 |
| 137 University of Wyoming | 10,624 | 9,506 | 9,293 | 8,615 | 9,342 | 8,623 | 8,035 | 8,528 |
| 138 Univ of Missouri Rolla | 10,422 | 14,233 | 15,153 | 10,451 | 10,121 | 6,318 | 5,451 | 4,746 |
| 139 Michigan Tech University | 9,992 | 9,976 | 8,095 | 7,899 | 8,417 | 7,748 | 6,729 | 6,444 |
| 140 Brown University | 9,844 | 9,058 | 6,406 | 6,086 | 6,573 | 5,699 | 4,477 | 3,077 |
| Total, 1st 140 insts. | 6,099,480 | 5,458,643 | 4,756,693 | 4,348,706 | 3,820,096 | 3,292,537 | 2,898,195 | 2,618,486 |
| 141 Univ of Nevada - Reno | 9,527 | 9,494 | 7,878 | 7,138 | 5,660I | 4,180I | 2,700E | 7,969E |
| 142 Wake Forest University | 9,472 | 8,645 | 7,542 | 4,824 | 4,208I | 3,594I | 2,980I | 2,366I |
| 143 Memphis State University | 9,407 | 7,593 | 6,554 | 5,864 | 4,407 | 3,422 | 1,309 | 861 |
| 144 Woods Hole Oceanogrphic Inst | 9,391 | 10,548 | 9,300 | 5,822 | 5,009 | 4,572 | 5,689 | 6,073 |
| 145 Univ of Wis-Milwaukee | 8,924 | 7,981 | 7,762 | 7,140 | 6,740 | 5,857 | 4,994 | 4,468 |
| 146 Ohio University | 8,842 | 7,739 | 7,323 | 5,720 | 5,198 | 3,516 | 2,911 | 2,836 |
| 147 U of Neb Med Ctr et Omaha | 8,766 | 8,719 | 6,919 | 5,249 | 5,116 | 3,654 | 3,907 | 3,239 |
| 148 Tufts University | 8,719 | 9,653 | 12,272 | 9,349 | 8,093I | 6,833I | 5,573I | 4,313I |
| 149 Thomas Jefferson Univ | 8,518 | 8,094 | 7,465 | 6,287 | 5,095 | 4,740 | 3,681 | 9,512 |
| 150 Tenn Technological Univ | 8,345 | 6,796 | 6,752 | 6,259 | 4,277I | 2,295 | 1,024E | 839E |
| Total, 1st 150 insts. | 6,189,391 | 5,543,905 | 4,836,460 | 4,412,358 | 3,873,899 | 3,335,200 | 2,932,963 | 2,660,962 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-34. Non-Federal R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 4 of 4

| Institution ranking | Non-Federal | | | | | | | |
|------------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
| 151 Vanderbilt University | 8,315 | 9,067 | 15,945 | 12,246 | 10,446 | 9,471 | 8,111 | 6,433 |
| 152 SUNY Hlth Sci Ctr - Brkln | 8,299 | 8,971 | 7,620 | 6,514 | 5,611I | 4,708I | 3,805 | 3,972 |
| 153 Univ Alabama Huntsville | 8,210 | 8,185 | 6,630 | 3,610 | 2,842 | 2,018 | 1,490 | 1,165 |
| 154 Desert Research Institute | 8,085 | 7,037 | 6,710 | 6,360 | 5,610 | 4,705 | 4,107 | 4,146 |
| 155 San Diego State Univ | 7,877 | 7,076 | 6,682 | 5,587 | 3,927 | 2,818 | 1,521 | 1,722 |
| 156 Univ of North Texas | 7,767 | 6,308 | 4,210 | 2,702 | 2,283 | 1,383 | 2,446 | 2,425 |
| 157 SUNY at Albany | 7,537 | 9,069 | 6,030 | 5,796 | 4,771 | 3,788 | 3,834 | 3,024 |
| 158 Univ of Southwestern LA | 7,445 | 5,999 | 4,229 | 4,428 | 4,177I | 3,926 | 2,140I | 355 |
| 159 University of Akron | 7,367 | 7,203 | 4,915 | 5,405 | 3,536 | 2,246 | 1,801 | 1,054 |
| 160 University of Louisville | 7,284 | 8,513 | 17,507 | 18,449 | 11,555 | 3,659 | 4,194 | 4,375 |
| Total, 1st 160 insts. | 6,267,577 | 5,621,333 | 4,916,938 | 4,483,455 | 3,928,657 | 3,373,922 | 2,966,412 | 2,689,633 |
| 161 University of Dayton | 7,133 | 5,334 | 5,382 | 4,735 | 3,847 | 3,733 | 3,340 | 2,946 |
| 162 University of Mississippi | 7,098 | 6,251 | 5,808 | 5,130 | 5,184 | 3,607 | 2,808 | 2,425E |
| 163 SUNY at Binghamton | 6,978 | 6,356 | 6,194 | 5,768 | 4,981 | 3,936 | 3,028 | 3,003 |
| 164 The Medical Col of Penna | 6,939 | 9,028 | 6,257 | 3,632 | 3,486I | 3,340I | 3,194 | 1,006 |
| 165 University of Lowell | 6,629 | 5,268 | 3,295 | 3,277 | 2,357 | 2,102 | 1,921 | 1,468 |
| 166 Creighton University | 6,524 | 5,548 | 5,822 | 4,390I | 2,581 | 1,526 | 1,354 | 1,424 |
| 167 University of Notre Dame | 6,506 | 6,176 | 4,266 | 4,010 | 3,597 | 3,477 | 2,766 | 1,616 |
| 168 Rice University | 6,270 | 5,223 | 4,551 | 4,143I | 3,735I | 3,327 | 2,985I | 2,643I |
| 169 Brigham Young University | 6,251 | 6,759 | 5,307 | 6,321 | 5,958I | 5,595 | 4,892 | 2,781 |
| 170 University of Oregon | 6,195 | 5,190 | 3,994 | 4,032 | 3,284 | 3,022 | 2,891 | 2,954 |
| Total, 1st 170 insts. | 6,334,100 | 5,682,466 | 4,969,814 | 4,528,893 | 3,968,044 | 3,406,587 | 2,995,591 | 2,713,899 |
| 171 Univ of Texas at Dallas | 6,187 | 4,453 | 3,827 | 2,827 | 1,918 | 1,891 | 2,224 | 2,515 |
| 172 Loyola Univ - Chicago | 6,057 | 5,252 | 3,880 | 3,319 | 3,072 | 2,488 | 2,103 | 1,982 |
| 173 North Dakota State Univ | 6,051 | 5,141 | 4,428 | 16,638 | 15,567 | 14,825I | 14,085I | 13,345 |
| 174 Wright State University | 6,025 | 5,329 | 4,539 | 3,565 | 5,435 | 3,307 | 4,302 | 3,051 |
| 175 South Dakota State Univ | 5,845 | 5,218 | 5,279 | 5,257 | 4,616 | 5,794 | 3,415 | 5,302 |
| 176 Florida Inst of Tech | 5,752 | 2,633 | 1,953 | 1,341 | 1,230 | 1,379 | 1,061 | 916 |
| 177 Northern Illinois Univ | 5,679 | 4,356 | 3,545 | 3,002 | 3,172 | 2,992I | 2,810I | 2,628 |
| 178 Colorado School of Mines | 5,633 | 4,929 | 3,835 | 3,369 | 3,089 | 2,508 | 2,398 | 1,699 |
| 179 George Washington Univ | 5,555 | 5,064 | 3,634 | 4,178 | 3,348I | 2,518 | 2,484 | 2,846 |
| 180 Univ of Missouri Kan City | 5,543 | 5,535 | 6,145 | 3,978 | 3,167 | 2,071 | 1,439 | 1,145 |
| Total, 1st 180 insts. | 6,392,427 | 5,730,376 | 5,010,879 | 4,576,367 | 4,012,658 | 3,448,360 | 3,031,912 | 2,749,328 |
| 181 George Mason University | 5,517 | 3,049 | 2,354 | 1,797E | 1,281I | 764I | 247 | 217I |
| 182 Hahnemann University | 5,351 | 3,349 | 1,733 | 2,270 | 1,600 | 3,290 | 2,314 | 1,102 |
| 183 Georgia State University | 5,321 | 4,493 | 3,503 | 3,152 | 1,739 | 995 | 1,144 | 1,088 |
| 184 U of Arkansas Med Sci Cam | 5,244 | 5,576 | 4,005 | 3,535 | 3,040 | 2,098 | 1,400 | 1,457 |
| 185 Cleveland State Univ | 5,004 | 4,810 | 5,287 | 4,878 | 2,880 | 2,290 | 1,297 | 1,100 |
| 186 Inst Paper Sci and Tech | 4,796 | 4,849 | 4,733 | 4,308 | 4,341 | 4,063 | 4,023 | 4,644 |
| 187 Clarkson University | 4,551 | 3,164 | 2,663 | 2,189 | 2,299 | 1,316 | 1,109 | 1,246 |
| 188 Union College (NY) | 4,515 | 4,715 | 4,923 | 3,329I | 1,735I | 141 | 158 | 138 |
| 189 Howard University | 4,315 | 4,979I | 5,643I | 6,307 | 6,047E | 1,077 | 1,936 | 2,288 |
| 190 New York Medical College | 4,216 | 2,937 | 2,720 | 1,756 | 1,241 | 1,098 | 1,175 | 1,586 |
| Total, 1st 190 insts. | 6,441,257 | 5,772,297 | 5,048,443 | 4,609,886 | 4,038,861 | 3,465,492 | 3,046,715 | 2,764,194 |
| 191 Loma Linda University | 4,198 | 2,954 | 2,629 | 2,668 | 2,125I | 1,583 | 1,262I | 940I |
| 192 Northeastern University | 4,130 | 3,101 | 2,928 | 2,036 | 1,724 | 1,908 | 1,783I | 1,658I |
| 193 Medical Col of Georgia | 4,007 | 3,971 | 2,304 | 2,348 | 1,992 | 1,621 | 1,319 | 1,066 |
| 194 Univ of Tex at Arlington | 3,934 | 5,658 | 5,415 | 4,093 | 3,995 | 2,230 | 1,482 | 1,237 |
| 195 Polytechnic University | 3,894 | 4,521 | 2,817 | 2,671 | 2,008 | 1,620 | 1,642 | 1,163 |
| 196 Univ of South Alabama | 3,868 | 3,537 | 3,305 | 2,953 | 2,708 | 2,825 | 1,971 | 1,410I |
| 197 University of Montana | 3,864 | 3,711 | 3,917E | 3,760 | 3,141I | 2,521E | 2,365I | 2,208 |
| 198 Alfred University | 3,723 | 3,425 | 3,544 | 2,209 | 1,580 | 1,066 | 822 | 904 |
| 199 Old Dominion U Res Fdn | 3,543 | 2,932 | 1,918 | 2,128 | 1,637I | 1,145I | 653 | 637E |
| 200 University of Toledo | 3,450 | 2,633 | 1,949 | 1,367I | 785 | 785 | 857 | 420 |
| Total, 1st 200 insts. | 6,479,868 | 5,808,740 | 5,079,169 | 4,636,119 | 4,060,556 | 3,482,796 | 3,060,871 | 2,775,837 |
| Total, all other sampled insts. | 166,813 | 155,465 | 203,453 | 185,054 | 163,010 | 147,647 | 132,502 | 118,204 |
| Estimated total non-sampled insts. | 66,884 | 60,893 | 0 | 0 | 0 | 0 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-35. R&D expenditures at universities and colleges,
by source of funds: fiscal year 1990

(Dollars in thousands)

Page 1 of 4

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|------------------------------|------------|---------------|----------------------|-----------|---------------------|-----------|
| Total, all institutions | 16,324,610 | 9,611,045 | 1,337,957 | 1,135,229 | 3,017,284 | 1,223,096 |
| 1 Johns Hopkins Univ | 668,915 | 599,851 | 3,134 | 14,961 | 28,676 | 22,293 |
| 2 Mass Inst of Technology | 311,767 | 233,813 | 2,489 | 43,460 | 7,109 | 24,896 |
| 3 University of Michigan | 310,578 | 180,456 | 2,687 | 27,128 | 74,299 | 26,008 |
| 4 Univ of Wis-Madison | 309,841 | 178,862 | 52,319 | 12,123 | 42,045 | 24,992 |
| 5 Stanford University | 305,700 | 251,446 | 1,449 | 15,774 | 16,342 | 21,689 |
| 6 Cornell University | 300,144 | 171,249 | 42,385 | 16,620 | 49,763 | 20,127 |
| 7 University of Minnesota | 293,046 | 143,810 | 47,437 | 18,086 | 53,399 | 29,314 |
| 8 Texas A & M University | 276,800 | 93,001 | 70,908 | 26,197 | 73,783 | 8,911 |
| 9 Pennsylvania State Univ | 256,926 | 136,656 | 10,915 | 34,806 | 74,476 | 73 |
| 10 Univ of Cal Los Angeles | 246,795 | 164,442 | 3,701 | 8,510 | 38,052 | 32,290 |
| Total, 1st 10 insts. | 3,275,512 | 2,153,586 | 236,424 | 217,465 | 457,944 | 210,093 |
| 11 University of Washington | 245,313 | 203,353 | 4,313 | 22,215 | 12,020 | 3,412 |
| 12 Univ of Cal San Francisco | 238,278 | 175,257 | 9,971 | 5,276 | 26,475 | 21,299 |
| 13 Univ of Cal San Diego | 237,032 | 182,555 | 4,922 | 9,135 | 23,145 | 17,275 |
| 14 Univ of Cal Berkeley | 231,061 | 131,717 | 9,055 | 10,892 | 66,764 | 12,656 |
| 15 Univ of Texas at Austin | 228,203 | 109,593 | 13,759 | 8,507 | 80,499 | 29,845 |
| 16 Univ of Ill Urbana | 227,742 | 117,170 | 28,582 | 2,762 | 53,391 | 29,637 |
| 17 Harvard University | 220,812 | 154,090 | 1,146 | 10,565 | 16,766 | 38,245 |
| 18 Univ of Cal Davis | 198,075 | 77,224 | 12,144 | 7,461 | 88,421 | 18,623 |
| 19 University of Arizona | 195,633 | 92,920 | 6,111 | 10,246 | 72,373 | 13,983 |
| 20 Univ of Pennsylvania | 189,390 | 133,747 | 3,635 | 11,973 | 12,579 | 27,456 |
| Total, 1st 20 insts. | 5,487,051 | 3,531,412 | 330,039 | 329,497 | 910,577 | 385,526 |
| 21 Columbia Univ Main Div | 182,769 | 156,270 | 2,635 | 5,618 | 4,352 | 13,894 |
| 22 Yale University | 180,706 | 144,962 | 934 | 1,014 | 11,464 | 18,332 |
| 23 Ohio State University | 178,569 | 78,878 | 31,254 | 14,744 | 24,624 | 29,069 |
| 24 Univ of Southern Cal | 169,102 | 123,714 | 2,389 | 18,896 | 24,103 | 0 |
| 25 Georgia Institute of Tech | 168,193 | 94,842 | 1,229 | 21,256 | 50,866 | 0 |
| 26 Univ of MD College Park | 166,022 | 66,410 | 48,026 | 14,229 | 37,357 | 0 |
| 27 University of Georgia | 156,745 | 43,864 | 37,358 | 5,797 | 68,535 | 1,188 |
| 28 Baylor Col of Medicine | 155,122 | 75,793 | 4,709 | 3,746 | 17,600 | 49,574 |
| 29 Univ of Colorado | 154,723 | 116,394 | 1,532 | 7,426 | 14,228 | 15,143 |
| 30 Washington University | 151,249 | 105,759 | 3,109 | 14,132 | 14,524 | 13,925 |
| Total, 1st 30 insts. | 7,150,248 | 4,538,298 | 462,914 | 446,355 | 1,178,030 | 524,651 |
| 31 Duke University | 140,708 | 106,053 | 1,391 | 12,252 | 9,757 | 11,255 |
| 32 University of Florida | 139,678 | 64,614 | 11,687 | 12,237 | 43,372 | 7,768 |
| 33 Rutgers the St Univ of NJ | 137,985 | 40,977 | 26,766 | 6,754 | 55,786 | 7,702 |
| 34 Louisiana State Univ | 135,849 | 48,802 | 59,636 | 3,759 | 33,636 | 10,116 |
| 35 Northwestern University | 131,979 | 61,812 | 1,081 | 5,325 | 49,949 | 13,812 |
| 36 N C State Univ at Raleigh | 131,133 | 43,787 | 49,013 | 21,398 | 14,485 | 2,450 |
| 37 Purdue University | 130,379 | 64,464 | 18,305 | 11,632 | 29,505 | 6,473 |
| 38 University of Rochester | 129,011 | 105,644 | 6,165 | 6,419 | 1,801 | 8,982 |
| 39 Michigan State University | 126,987 | 58,221 | 24,069 | 4,557 | 30,735 | 9,405 |
| 40 Univ. Of Tennessee System | 126,790 | 58,648 | 23,222 | 7,449 | 29,657 | 7,814 |
| Total, 1st 40 insts. | 8,480,747 | 5,191,320 | 664,149 | 538,137 | 1,476,713 | 610,428 |
| 41 Univ of NC at Chapel Hill | 123,113 | 92,468 | 13,465 | 2,179 | 14,988 | 13 |
| 42 VA Polytech Inst & St U | 121,423 | 45,949 | 39,169 | 11,394 | 20,437 | 4,474 |
| 43 University of Chicago | 117,955 | 96,327 | 194 | 1,202 | 10,210 | 10,022 |
| 44 University of Pittsburgh | 117,716 | 90,700 | 1,229 | 6,481 | 7,216 | 12,090 |
| 45 Iowa St U of Sci & Tech | 115,945 | 34,043 | 26,833 | 5,525 | 44,639 | 4,905 |
| 46 University of Iowa | 115,778 | 79,046 | 2,535 | 6,827 | 22,569 | 4,801 |
| 47 University of Connecticut | 113,349 | 43,477 | 4,010 | 6,388 | 21,409 | 8,065 |
| 48 Univ Alabama Birmingham | 110,603 | 74,486 | 2,199 | 7,241 | 12,649 | 14,028 |
| 49 SUNY at Buffalo | 109,190 | 66,876 | 4,164 | 2,118 | 15,823 | 16,209 |
| 50 New York University | 108,511 | 80,756 | 786 | 5,260 | 9,118 | 12,591 |
| Total, 1st 50 insts. | 9,634,330 | 5,895,448 | 758,733 | 592,752 | 1,689,771 | 697,626 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-35. R&D expenditures at universities and colleges,
by source of funds: fiscal year 1990

[Dollars in thousands]

Page 2 of 4

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|----------------------------------|------------|---------------|----------------------|----------|---------------------|-----------|
| 51 California Inst of Tech | 105,730 | 90,577 | 510 | 2,268 | 7,492 | 4,883 |
| 52 Univ of Massachusetts | 101,812 | 56,018 | 7,429 | 11,678 | 20,500 | 6,187 |
| 53 Carnegie-Mellon Univ | 100,201 | 64,550 | 6,350 | 20,295 | 1,881 | 7,125 |
| 54 University of Virginia | 96,815 | 58,801 | 6,960 | 6,406 | 13,215 | 11,433 |
| 55 University of Miami | 94,344 | 68,144 | 2,110 | 5,366 | 4,555 | 14,169 |
| 56 Case Western Reserve Univ | 93,384 | 70,515 | 1,546 | 4,954 | 6,348E | 10,021 |
| 57 Princeton University | 91,514 | 51,559 | 1,164 | 4,964 | 24,779 | 9,328 |
| 58 UT MD Anderson Cancer Ctr | 91,283 | 28,889 | 0 | 0 | 41,501 | 20,893 |
| 59 Oregon State University | 90,688 | 50,544 | 21,901 | 3,167 | 5,446 | 9,630 |
| 60 Indiana University | 89,191 | 57,155 | 798 | 2,316 | 19,346 | 9,576 |
| Total, 1st 60 insts. | 10,589,292 | 6,492,200 | 807,501 | 654,166 | 1,834,534 | 800,891 |
| 61 University of Utah | 89,018 | 62,297 | 4,139 | 3,443 | 13,974 | 5,165 |
| 62 Utah State University | 86,450 | 58,965 | 11,550 | 3,089 | 12,508 | 1,338 |
| 63 UT SW Medical Ctr-Dallas | 85,919 | 52,965 | 31 | 8,537 | 4,533 | 17,753 |
| 64 Univ of Ill Chicago | 85,268 | 43,968 | 1,708 | 5,157 | 25,786 | 8,649 |
| 65 Univ of Missouri Columbia | 84,311 | 24,422 | 13,398 | 9,130 | 32,468 | 4,893 |
| 66 Yeshiva University | 83,968 | 65,066 | 0 | 0 | 9,603 | 9,299 |
| 67 Univ of MD Balt Prof Sch | 83,689 | 38,841 | 16,815 | 12,791 | 9,072 | 6,170 |
| 68 Emory University | 82,774 | 52,367 | 3,324 | 7,170 | 13,463 | 6,450 |
| 69 SUNY at Stony Brook | 82,236 | 55,911 | 2,745 | 2,426 | 18,034 | 3,120 |
| 70 Univ of Cal Irvine | 78,074 | 52,492 | 2,268 | 3,115 | 11,419 | 8,780 |
| Total, 1st 70 insts. | 11,430,999 | 7,001,494 | 863,479 | 708,024 | 1,985,494 | 872,508 |
| 71 Univ of Nebraska-Lincoln | 77,598 | 22,686 | 27,124 | 3,394 | 22,624 | 1,770 |
| 72 Univ of Hawaii-Manoa | 76,525 | 42,665 | 27,487 | 1,585 | 3,568 | 1,220 |
| 73 Univ of South Florida | 76,404 | 30,481 | 4,153 | 4,250 | 35,356 | 2,164 |
| 74 Rockefeller University | 75,245 | 36,788 | 268 | 4,918 | 16,805 | 16,466 |
| 75 Vanderbilt University | 75,062 | 66,747 | 43 | 2,313 | 1,955 | 4,004 |
| 76 University of Kentucky | 74,959 | 29,612 | 6,594 | 6,720 | 27,467 | 4,566 |
| 77 University of Cincinnati | 74,461 | 44,966 | 2,978 | 4,468 | 13,114 | 8,935 |
| 78 Colorado State University | 73,967 | 50,744 | 8,684 | 2,883 | 6,988 | 4,668 |
| 79 Boston University | 73,655 | 60,459 | 171 | 4,611 | 0 | 8,414 |
| 80 Woods Hole Oceanographic Inst | 71,747 | 62,356 | 515 | 532 | 2,275 | 6,069 |
| Total, 1st 80 insts. | 12,180,622 | 7,448,998 | 941,496 | 743,698 | 2,115,646 | 930,784 |
| 81 New Mexico State Univ | 71,288 | 54,688 | 8,250 | 7,293 | 884 | 173 |
| 82 Washington State Univ | 66,856 | 26,884 | 5,161 | 5,523 | 25,408 | 6,880 |
| 83 Auburn University | 66,795 | 14,629 | 21,911 | 5,541 | 19,557 | 5,157 |
| 84 Clemson University | 66,664 | 14,221 | 16,424 | 7,595 | 26,262 | 2,162 |
| 85 Oklahoma State University | 65,685 | 17,744 | 3,004 | 1,963 | 42,142 | 832 |
| 86 Univ of Alaska Fairbanks | 65,371 | 31,896 | 2,205 | 4,100 | 23,636 | 3,734 |
| 87 Univ of Med & Dent of N J | 64,229 | 33,185 | 8,231 | 2,908 | 14,263 | 5,642 |
| 88 CUNY Mt Sinai Sch of Med | 63,752 | 43,607 | 971 | 4,053 | 5,327 | 9,794 |
| 89 Florida State University | 62,933 | 32,927 | 2,396 | 669 | 24,940 | 2,001 |
| 90 Virginia Commonwealth Univ | 62,730 | 41,606 | 2,390 | 4,835 | 11,778 | 2,121 |
| Total, 1st 90 insts. | 12,837,125 | 7,760,385 | 1,012,439 | 785,178 | 2,309,843 | 969,280 |
| 91 Wayne State University | 62,455 | 28,488 | 5,306 | 5,875 | 17,715 | 5,071 |
| 92 University of Kansas | 61,144 | 26,786 | 2,240 | 4,473 | 25,901 | 1,744 |
| 93 Univ of Cal Santa Barbara | 59,750 | 47,873 | 1,169 | 2,655 | 5,617 | 2,436 |
| 94 Arizona State University | 58,652 | 26,590 | 1,045 | 7,354 | 22,115 | 1,548 |
| 95 University of Oklahoma | 58,645 | 16,871 | 3,983 | 2,562 | 27,498 | 7,731 |
| 96 Mississippi State Univ | 58,492 | 21,426 | 20,684 | 6,389 | 5,298 | 4,695 |
| 97 University of New Mexico | 57,728 | 25,449 | 4,900 | 4,022 | 13,607 | 9,750 |
| 98 Tulane University | 56,407 | 28,331 | 1,865 | 5,952 | 15,785 | 4,474 |
| 99 Univ of Cal Riverside | 54,892 | 15,806 | 2,374 | 903 | 32,636 | 3,173 |
| 100 Georgetown University | 50,867 | 36,093 | 155 | 3,362 | 7,418 | 3,839 |
| Total, 1st 100 insts. | 13,416,157 | 8,034,098 | 1,056,160 | 828,725 | 2,483,433 | 1,013,741 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-35. R&D expenditures at universities and colleges,
by source of funds: fiscal year 1990

[Dollars in thousands]

Page 3 of 4

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|-------------------------------|------------|---------------|----------------------|----------|---------------------|-----------|
| 101 Kans St U - Ag & App Sci | 50,311 | 15,651 | 22,757 | 2,483 | 7,357 | 2,063 |
| 102 Temple University | 49,449 | 26,164 | 778 | 2,707 | 14,241 | 5,559 |
| 103 Univ of South Carolina | 47,477 | 20,587 | 960 | 3,072 | 18,787 | 4,071 |
| 104 Rensselaer Polytech Inst | 47,363 | 22,809 | 3,255 | 11,418 | 4,267 | 5,614 |
| 105 Tufts University | 47,009 | 38,290 | 115 | 7,761E | 821E | 22E |
| 106 Brown University | 46,763 | 36,919 | 317 | 3,307 | 3,801 | 2,419 |
| 107 U Tex Hlth Sci Ctr Houstn | 45,707 | 29,017 | 1,066 | 5,142 | 4,185 | 6,297 |
| 108 U Tex Hlth Sci Ctr S Anto | 45,663 | 29,431 | 2,241 | 6,166 | 4,901 | 2,924 |
| 109 West Virginia University | 45,542 | 18,451 | 1,198 | 10,037 | 14,099 | 1,757 |
| 110 U of VT & State Agr Coll | 45,162 | 30,555 | 2,389 | 3,473 | 6,544 | 2,201 |
| Total, 1st 110 insts. | 13,886,603 | 8,301,972 | 1,091,236 | 884,291 | 2,562,436 | 1,046,668 |
| 111 Dartmouth College | 43,737 | 30,135 | 2,694 | 2,251 | 5,578E | 3,079 |
| 112 Oregon Hlth Sciences Univ | 41,420 | 27,241 | 0 | 1,325 | 7,671 | 5,183 |
| 113 U Tex Med Brnch Galveston | 40,610 | 21,693 | 5,519 | 2,260 | 6,088 | 5,050 |
| 114 University of Delaware | 40,119 | 17,588 | 3,139 | 4,397 | 11,751 | 3,244 |
| 115 Wake Forest University | 39,654 | 30,182 | 9,143 | 5,642 | 1,490 | 2,197 |
| 116 U of Houston | 37,978 | 17,575 | 9,706 | 1,529 | 6,202 | 2,966 |
| 117 Univ of Ark Fayetteville | 36,963 | 10,831 | 11,686 | 2,947 | 10,507 | 1,192 |
| 118 University of Dayton | 36,177 | 29,044 | 551 | 4,790 | 1,522 | 270 |
| 119 Unif Serv Univ of Hlth Sc | 36,080 | 11,288 | 0 | 0 | 24,792 | 0 |
| 120 Univ of Rhode Island | 35,846 | 20,511 | 4,802 | 1,071 | 9,411 | 51 |
| Total, 1st 120 insts. | 14,275,187 | 8,518,060 | 1,129,476 | 910,503 | 2,647,248 | 1,069,900 |
| 121 SUNY Hlth Sci Ctr - Syrcs | 35,193 | 9,965 | 393 | 320 | 0 | 24,515 |
| 122 University of Idaho | 34,936 | 13,812 | 7,831 | 3,731 | 9,513 | 49 |
| 123 Medical College of Wis | 34,622 | 21,594 | 1,185 | 3,189 | 3,404 | 5,250 |
| 124 Texas Tech University | 34,142 | 9,695 | 11,669 | 4,708 | 6,761 | 1,309 |
| 125 Syracuse University | 33,811 | 18,924 | 1,626 | 3,851 | 6,273 | 3,137 |
| 126 George Washington Univ | 32,372 | 26,817 | 165 | 988 | 1,490 | 2,912 |
| 127 Thomas Jefferson Univ | 30,969 | 22,451 | 0 | 8,518 | 0 | 0 |
| 128 Brandeis University | 30,881 | 18,819 | 467 | 0 | 4,725 | 6,870 |
| 129 Univ of Central Florida | 30,618 | 9,354 | 5,485 | 3,813 | 11,966 | 0 |
| 130 Univ of P R-Mayaguez | 30,555 | 14,337 | 7,336 | 293 | 6,736 | 1,853 |
| Total, 1st 130 insts. | 14,603,286 | 8,683,828 | 1,165,633 | 939,914 | 2,698,116 | 1,115,795 |
| 131 Univ Alabama Huntsville | 29,565 | 21,355 | 972 | 2,529 | 4,709 | 0 |
| 132 Montana State University | 27,648 | 9,052 | 7,153 | 3,833 | 7,610 | 0 |
| 133 Lehigh University | 27,255 | 11,242 | 2,797 | 8,030 | 4,580 | 606 |
| 134 Univ of Cal Santa Cruz | 26,347 | 13,855 | 828 | 825 | 9,076 | 1,763 |
| 135 University of Oregon | 26,346 | 20,151 | 269 | 218 | 4,622 | 1,086 |
| 136 Rice University | 26,267 | 19,997 | 1,211 | 3,616 | 0 | 1,443 |
| 137 Univ of New Hampshire | 25,994 | 14,455 | 1,291 | 1,464 | 5,922 | 2,862 |
| 138 Southern Ill U-Carbondale | 25,873 | 8,035 | 3,346 | 1,884 | 10,841 | 1,767 |
| 139 Univ of Maine Orono | 23,605 | 9,046 | 908 | 4,663 | 8,253 | 735 |
| 140 Med Univ of So Carolina | 23,128 | 10,910 | 0 | 2,264 | 5,810 | 4,144 |
| Total, 1st 140 insts. | 14,865,314 | 8,821,926 | 1,184,408 | 969,240 | 2,759,539 | 1,130,201 |
| 141 N Mex Inst Mining & Tech | 22,911 | 5,610 | 1,626 | 10,194 | 4,908 | 573 |
| 142 SUNY Hlth Sci Ctr - Brkln | 22,873 | 14,574 | 2,400 | 1,084 | 1,652 | 3,163 |
| 143 University of Wyoming | 22,831 | 12,207 | 2,056 | 2,001 | 6,328 | 239 |
| 144 San Diego State Univ | 22,524 | 14,647 | 1,536 | 1,994 | 3,706 | 641 |
| 145 University of Mississippi | 22,071 | 14,973 | 33 | 1,250 | 4,012 | 1,803 |
| 146 SUNY at Albany | 22,034 | 14,497 | 157 | 727 | 5,858 | 795 |
| 147 The University of Alabama | 21,488 | 6,941 | 274 | 1,798 | 11,969 | 506 |
| 148 Univ of Nevada - Reno | 21,449 | 11,922 | 702 | 1,227 | 6,357 | 1,241 |
| 149 Rush University | 21,284 | 6,083 | 1,083 | 3,622 | 6,438 | 4,058 |
| 150 Drexel University | 20,079 | 5,761 | 1,619 | 3,888 | 7,811 | 0 |
| Total, 1st 150 insts. | 15,084,858 | 8,930,141 | 1,195,894 | 997,025 | 2,818,578 | 1,143,220 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-35. R&D expenditures at universities and colleges,
by source of funds: fiscal year 1990

(Dollars in thousands)

Page 4 of 4

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|------------------------------------|------------|---------------|----------------------|-----------|---------------------|-----------|
| 151 University of Notre Dame | 19,373 | 12,867 | 212 | 3,965 | 2,329 | 0 |
| 152 SUNY Col of Env Sci & For | 18,671 | 1,973 | 622 | 1,867 | 13,587 | 622 |
| 153 The Medical Col of Penna | 18,643 | 11,704 | 3,246 | 1,263 | 429 | 2,001 |
| 154 U of Neb Med Ctr at Omaha | 17,844 | 9,078 | 511 | 1,595 | 4,819 | 1,841 |
| 155 University of N Dakota | 17,498 | 14,398 | 133 | 1,556 | 1,022 | 389 |
| 156 US Naval Postgrad School | 17,391 | 17,333 | 0 | 0 | 0 | 58 |
| 157 Howard University | 17,382 | 13,067 | 117 | 2,869 | 1,313E | 16 |
| 158 St Louis University | 17,157 | 14,106 | 216 | 1,148 | 101 | 1,586 |
| 159 Desert Research Institute | 16,852 | 8,767 | 1,716 | 3,329 | 2,844 | 196 |
| 160 Michigan Tech University | 16,037 | 6,045 | 3,437 | 3,999 | 2,556 | 0 |
| Total, 1st 160 insts. | 15,261,706 | 9,039,479 | 1,206,104 | 1,018,616 | 2,847,578 | 1,149,929 |
| 161 University of Louisville | 15,921 | 8,637 | 90 | 1,403 | 5,791 | 0 |
| 162 Florida A & M University | 15,847 | 13,110 | 2,592 | 145 | 0 | 0 |
| 163 U of MD Center For EES | 15,652 | 2,379 | 3,153 | 63 | 8,979 | 1,078 |
| 164 Univ of Wis-Milwaukee | 15,639 | 6,715 | 3,581 | 430 | 1,907 | 1,006 |
| 165 N J Inst of Technology | 15,225 | 2,731 | 8,422 | 1,710 | 586 | 1,776 |
| 166 Northeastern University | 14,347 | 10,217 | 359 | 1,711 | 241 | 1,819 |
| 167 Univ of Missouri Rolla | 14,285 | 3,863 | 835 | 2,186 | 6,141 | 1,260 |
| 168 Southern Methodist Univ | 13,600E | 11,000E | 800E | 300E | 1,000E | 500E |
| 169 Hahnemann University | 13,595 | 8,244 | 337 | 232 | 1,593E | 3,189E |
| 170 Wright State University | 13,451 | 7,426 | 824 | 503 | 3,014 | 1,684 |
| Total, 1st 170 insts. | 15,409,268 | 9,113,801 | 1,229,097 | 1,027,299 | 2,876,830 | 1,162,241 |
| 171 New York Medical College | 13,244 | 9,028 | 375 | 1,706 | 0 | 2,135 |
| 172 Ohio University | 12,982 | 4,140 | 3,816 | 454 | 4,298 | 274 |
| 173 CUNY City College | 12,973 | 10,554 | 716 | 442 | 0 | 1,261 |
| 174 North Dakota State Univ | 12,468 | 6,417 | 928 | 1,289 | 2,997 | 837 |
| 175 Loyola Univ Chicago | 12,260 | 6,203 | 221 | 1,398 | 2,314 | 2,124 |
| 176 Univ of Texas at Dallas | 12,075 | 5,888 | 1,266 | 740 | 2,799 | 1,382 |
| 177 Memphis State University | 12,073 | 2,666 | 3,051 | 239 | 5,551 | 566 |
| 178 Medical Col of Georgia | 12,052 | 8,045 | 207 | 1,920 | 841 | 1,039 |
| 179 U of Arkansas Med Sci Cam | 11,898 | 6,654 | 140 | 1,117 | 2,144 | 1,843 |
| 180 Brigham Young University | 11,608 | 5,357 | 1,360 | 1,845 | 2,755 | 291 |
| Total, 1st 180 insts. | 15,532,901 | 9,178,753 | 1,241,177 | 1,038,449 | 2,900,529 | 1,173,993 |
| 181 University of Lowell | 11,291 | 4,662 | 1,204 | 3,892 | 187 | 1,346 |
| 182 Univ of South Alabama | 11,105 | 7,237 | 396 | 1,553 | 1,919 | 0 |
| 183 Colorado School of Mines | 10,943 | 5,310 | 1,217 | 4,060 | 356 | 0 |
| 184 Polytechnic University | 10,919 | 7,025 | 1,201 | 2,278 | 265 | 150 |
| 185 SUNY at Binghamton | 10,680 | 3,702 | 1,234 | 1,308 | 2,995 | 1,441 |
| 186 Old Dominion U Res Fdn | 10,579 | 7,036 | 2,962 | 581 | 0 | 0 |
| 187 Eastern VA Medical School | 10,496 | 7,782 | 64 | 0 | 0 | 2,650 |
| 188 University of Akron | 10,372 | 3,005 | 1,733 | 3,873 | 1,761 | 0 |
| 189 University of Denver | 10,102 | 7,476 | 200 | 1,623 | 803 | 0 |
| 190 San Jose State University | 10,086 | 7,370 | 1,108 | 599 | 727 | 282 |
| Total, 1st 190 insts. | 15,639,474 | 9,239,358 | 1,252,496 | 1,058,216 | 2,909,542 | 1,179,862 |
| 191 Univ of North Texas | 9,741 | 1,974 | 3,749 | 2,407 | 1,611 | 0 |
| 192 Tenn Technological Univ | 9,631 | 1,286 | 4,377 | 945 | 1,663 | 1,360 |
| 193 College of William & Mary | 9,572 | 6,460 | 1,629 | 138 | 1,145 | 200 |
| 194 South Dakota State Univ | 9,511 | 3,666 | 4,785 | 282 | 550 | 228 |
| 195 Albany Med Ctr Grad Sch | 9,431 | 6,073 | 0 | 719 | 1,131 | 1,508 |
| 196 Oregon Grad Inst Sci/Tech | 9,262 | 6,837 | 52 | 1,591 | 745 | 17 |
| 197 Georgia State University | 8,942 | 3,621 | 455 | 270 | 3,718 | 878 |
| 198 Northern Illinois Univ | 8,930 | 3,251 | 422 | 2,351 | 2,906 | 0 |
| 199 Creighton University | 8,929 | 2,405 | 225 | 6,084 | 215 | 0 |
| 200 Cleveland State Univ | 8,699 | 3,695 | 2,022 | 206 | 2,667 | 109 |
| Total, 1st 200 insts. | 15,732,122 | 9,278,626 | 1,270,212 | 1,073,209 | 2,925,913 | 1,184,162 |
| Total, all other sampled insts. | 465,534 | 272,349 | 42,866 | 48,643 | 72,172 | 29,504 |
| Estimated total non-sampled insts. | 126,954 | 60,070 | 24,879 | 13,377 | 19,199 | 9,430 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

BEST COPY AVAILABLE

101

Table B-36. R&D expenditures at public universities and colleges,
by source of funds: fiscal year 1990

[Dollars in thousands]

Page 1 of 3

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|------------------------------|------------|---------------|----------------------|----------|---------------------|---------|
| Total, all institutions | 10,799,382 | 5,608,210 | 1,202,903 | 738,248 | 2,519,826 | 730,195 |
| 1 University of Michigan | 310,578 | 180,456 | 2,687 | 27,128 | 74,299 | 26,008 |
| 2 Univ of Wis-Madison | 309,841 | 178,862 | 52,319 | 12,123 | 42,045 | 24,492 |
| 3 University of Minnesota | 292,046 | 143,810 | 47,437 | 18,086 | 53,399 | 29,314 |
| 4 Texas A & M University | 272,800 | 93,001 | 70,908 | 26,197 | 73,783 | 8,911 |
| 5 Pennsylvania State Univ | 256,926 | 136,656 | 10,915 | 34,806 | 74,476 | 73 |
| 6 Univ of Cal Los Angeles | 246,795 | 164,442 | 3,701 | 8,310 | 38,052 | 32,290 |
| 7 University of Washington | 245,313 | 203,353 | 4,313 | 22,215 | 12,020 | 3,412 |
| 8 Univ of Cal San Francisco | 238,278 | 175,257 | 9,971 | 5,276 | 26,475 | 21,299 |
| 9 Univ of Cal San Diego | 237,032 | 182,555 | 4,922 | 9,135 | 23,145 | 17,275 |
| 10 Univ of Cal Berkeley | 231,061 | 131,717 | 9,032 | 10,892 | 66,764 | 12,656 |
| Total, 1st 10 insts. | 2,640,670 | 1,590,109 | 216,205 | 174,168 | 484,458 | 175,730 |
| 11 Univ of Texas at Austin | 226,203 | 109,593 | 13,759 | 3,507 | 80,499 | 20,845 |
| 12 Univ of Ill Urbana | 227,742 | 117,170 | 28,582 | 20,762 | 53,591 | 7,637 |
| 13 Univ of Cal Davis | 198,075 | 77,424 | 12,144 | 7,461 | 88,421 | 12,625 |
| 14 University of Arizona | 195,633 | 92,920 | 6,111 | 10,246 | 72,373 | 13,983 |
| 15 Ohio State University | 178,569 | 78,878 | 31,254 | 14,744 | 24,624 | 29,069 |
| 16 Georgia Institute of Tech | 168,193 | 94,842 | 1,229 | 21,256 | 50,866 | 0 |
| 17 Univ of MD College Park | 166,022 | 66,410 | 48,026 | 14,229 | 37,357 | 0 |
| 18 University of Georgia | 156,742 | 43,864 | 37,358 | 5,797 | 68,535 | 1,188 |
| 19 Univ of Colorado | 154,723 | 116,394 | 1,532 | 7,426 | 14,228 | 15,143 |
| 20 University of Florida | 139,678 | 64,614 | 11,687 | 12,237 | 43,372 | 7,768 |
| Total, 1st 20 insts. | 4,454,250 | 2,452,218 | 407,887 | 291,833 | 1,018,324 | 283,988 |
| 21 Rutgers the St Univ of NJ | 137,985 | 40,977 | 26,766 | 6,754 | 55,786 | 7,702 |
| 22 Louisiana State Univ | 135,849 | 48,802 | 39,536 | 3,759 | 33,636 | 10,116 |
| 23 N C State Univ at Raleigh | 131,133 | 43,787 | 49,013 | 21,398 | 14,485 | 2,450 |
| 24 Purdue University | 130,379 | 64,464 | 18,305 | 11,632 | 29,505 | 6,473 |
| 25 Michigan State University | 126,987 | 58,221 | 22,069 | 4,557 | 30,735 | 4,405 |
| 26 Univ. Of Tennessee System | 126,790 | 58,648 | 23,222 | 7,449 | 29,657 | 7,814 |
| 27 Univ of NC at Chapel Hill | 123,113 | 92,468 | 13,465 | 2,179 | 14,988 | 13 |
| 28 VA Polytech Inst & St U | 121,423 | 45,949 | 39,169 | 11,394 | 20,437 | 4,474 |
| 29 University of Pittsburgh | 117,716 | 90,700 | 1,229 | 6,481 | 7,216 | 12,090 |
| 30 Iowa St U of Sci & Tech | 115,945 | 34,043 | 26,833 | 5,525 | 44,639 | 4,905 |
| Total, 1st 30 insts. | 5,721,570 | 3,030,277 | 669,494 | 372,961 | 1,299,408 | 349,430 |
| 31 University of Iowa | 115,778 | 79,046 | 2,535 | 6,827 | 22,569 | 4,801 |
| 32 University of Connecticut | 113,349 | 43,477 | 4,010 | 6,388 | 51,409 | 8,065 |
| 33 Univ Alabama Birmingham | 110,603 | 74,486 | 2,199 | 7,241 | 12,649 | 14,028 |
| 34 SUNY at Buffalo | 109,190 | 66,876 | 4,164 | 2,118 | 19,823 | 16,209 |
| 35 Univ of Massachusetts | 101,812 | 56,018 | 7,429 | 11,678 | 20,500 | 6,187 |
| 36 University of Virginia | 96,815 | 58,801 | 6,960 | 6,406 | 13,215 | 11,433 |
| 37 UT MD Anderson Cancer Ctr | 91,283 | 28,889 | 0 | 0 | 41,501 | 20,893 |
| 38 Oregon State University | 90,688 | 50,544 | 21,901 | 3,167 | 5,446 | 9,630 |
| 39 Indiana University | 89,191 | 57,155 | 7,798 | 2,316 | 19,346 | 9,576 |
| 40 University of Utah | 89,018 | 62,297 | 4,139 | 3,443 | 13,974 | 5,165 |
| Total, 1st 40 insts. | 6,729,297 | 3,607,866 | 723,329 | 422,545 | 1,519,840 | 455,417 |
| 41 Utah State University | 86,450 | 58,965 | 11,550 | 2,089 | 12,508 | 1,338 |
| 42 UT SW Medical Ctr-Dallas | 85,919 | 54,965 | 31 | 8,537 | 4,633 | 17,753 |
| 43 Univ of Ill Chicago | 85,268 | 43,968 | 1,708 | 5,157 | 25,786 | 8,649 |
| 44 Univ of Missouri Columbia | 84,311 | 24,422 | 13,398 | 9,130 | 32,468 | 4,893 |
| 45 Univ of MD Balt Prof Sch | 83,689 | 38,841 | 16,815 | 12,791 | 9,072 | 6,170 |
| 46 SUNY at Stony Brook | 81,236 | 55,911 | 2,745 | 2,426 | 18,034 | 3,120 |
| 47 Univ of Cal Irvine | 78,074 | 52,492 | 2,268 | 3,115 | 11,419 | 8,780 |
| 48 Univ of Nebraska-Lincoln | 77,598 | 22,686 | 27,124 | 3,394 | 22,624 | 1,770 |
| 49 Univ of Hawaii-Manoa | 76,525 | 42,665 | 27,487 | 1,585 | 3,568 | 1,220 |
| 50 Univ of South Florida | 76,404 | 30,481 | 4,153 | 4,250 | 35,356 | 2,164 |
| Total, 1st 50 insts. | 7,545,771 | 4,033,262 | 830,908 | 475,019 | 1,695,308 | 511,274 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-36. R&D expenditures at public universities and colleges,
by source of funds: fiscal year 1990

[Dollars in thousands]

Page 2 of 3

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|-------------------------------|-----------|---------------|----------------------|----------|---------------------|---------|
| 51 University of Kentucky | 74,959 | 29,612 | 6,594 | 6,720 | 27,467 | 4,566 |
| 52 University of Cincinnati | 74,461 | 44,966 | 2,978 | 4,468 | 13,114 | 8,935 |
| 53 Colorado State University | 73,967 | 50,744 | 8,684 | 2,883 | 6,988 | 4,668 |
| 54 New Mexico State Univ | 71,288 | 34,688 | 8,250 | 7,293 | 884 | 173 |
| 55 Washington State Univ | 66,856 | 26,884 | 5,161 | 2,523 | 25,408 | 6,880 |
| 56 Auburn University | 66,795 | 14,629 | 21,911 | 5,541 | 19,557 | 5,157 |
| 57 Clemson University | 66,664 | 14,221 | 16,424 | 7,595 | 26,262 | 2,162 |
| 58 Oklahoma State University | 65,685 | 17,744 | 3,004 | 1,963 | 42,142 | 832 |
| 59 Univ of Alaska Fairbanks | 65,571 | 31,896 | 2,205 | 4,100 | 23,636 | 3,734 |
| 60 Univ of Med & Dent of N J | 64,229 | 33,185 | 8,231 | 2,908 | 14,263 | 5,642 |
| Total, 1st 60 insts. | 8,236,246 | 4,351,831 | 914,350 | 521,013 | 1,895,029 | 554,023 |
| 61 Florida State University | 62,933 | 32,927 | 2,396 | 669 | 24,940 | 2,001 |
| 62 Virginia Commonwealth Univ | 62,730 | 41,606 | 2,390 | 4,835 | 11,778 | 2,121 |
| 63 Wayne State University | 62,455 | 28,488 | 5,306 | 5,875 | 17,715 | 5,071 |
| 64 University of Kansas | 61,144 | 26,786 | 2,240 | 4,473 | 25,901 | 1,744 |
| 65 Univ of Cal Santa Barbara | 59,750 | 47,873 | 1,169 | 2,655 | 5,617 | 2,436 |
| 66 Arizona State University | 58,652 | 26,590 | 1,045 | 7,354 | 22,115 | 1,548 |
| 67 University of Oklahoma | 58,645 | 16,871 | 3,983 | 2,562 | 27,498 | 7,731 |
| 68 Mississippi State Univ | 58,492 | 21,426 | 20,684 | 6,389 | 5,298 | 4,695 |
| 69 University of New Mexico | 57,728 | 25,449 | 4,900 | 4,022 | 13,607 | 9,750 |
| 70 Univ of Cal Riverside | 54,892 | 15,806 | 2,374 | 903 | 32,636 | 3,173 |
| Total, 1st 70 insts. | 8,833,667 | 4,635,653 | 960,837 | 560,750 | 2,082,134 | 594,293 |
| 71 Kans St U - Ag & App Sci | 50,311 | 15,651 | 22,757 | 2,483 | 7,357 | 2,063 |
| 72 Temple University | 49,449 | 26,164 | 778 | 2,707 | 14,241 | 5,559 |
| 73 Univ of South Carolina | 47,477 | 20,587 | 960 | 5,072 | 18,787 | 4,071 |
| 74 U Tex Hlth Sci Ctr Houston | 45,707 | 29,017 | 1,066 | 5,142 | 4,185 | 6,297 |
| 75 U Tex Hlth Sci Ctr S Anto | 45,663 | 29,431 | 2,241 | 6,166 | 4,901 | 2,924 |
| 76 West Virginia University | 45,542 | 18,451 | 1,198 | 10,037 | 14,099 | 1,757 |
| 77 U of VT & State Agr Coll | 45,162 | 30,555 | 2,389 | 3,473 | 6,544 | 2,201 |
| 78 Oregon Hlth Sciences Univ | 41,420 | 27,241 | 0 | 1,325 | 7,671 | 5,183 |
| 79 U Tex Med Brnch Galveston | 40,610 | 21,693 | 5,519 | 2,260 | 6,088 | 5,050 |
| 80 University of Delaware | 40,119 | 17,588 | 3,139 | 4,397 | 11,751 | 3,244 |
| Total, 1st 80 insts. | 9,285,127 | 4,872,031 | 1,000,884 | 601,812 | 2,177,758 | 632,642 |
| 81 U of Houston | 37,978 | 17,575 | 9,706 | 1,529 | 6,202 | 2,966 |
| 82 Univ of Ark Fayetteville | 36,963 | 10,831 | 11,686 | 2,947 | 10,307 | 1,192 |
| 83 Unif Serv Univ of Hlth Sc | 36,080 | 11,288 | 0 | 0 | 24,792 | 0 |
| 84 Univ of Rhode Island | 35,846 | 20,511 | 4,802 | 1,071 | 9,411 | 51 |
| 85 SUNY Hlth Sci Ctr - Syrcs | 35,193 | 9,965 | 393 | 320 | 0 | 24,515 |
| 86 University of Idaho | 34,936 | 13,812 | 7,831 | 3,731 | 9,513 | 49 |
| 87 Texas Tech University | 34,142 | 9,695 | 11,669 | 4,708 | 6,761 | 1,309 |
| 88 Univ of Central Florida | 30,618 | 9,354 | 5,485 | 3,813 | 11,966 | 0 |
| 89 Univ of P R-Mayaguez | 30,555 | 14,337 | 7,336 | 293 | 6,736 | 1,853 |
| 90 Univ Alabama Huntsville | 29,565 | 21,355 | 972 | 2,529 | 4,709 | 0 |
| Total, 1st 90 insts. | 9,627,003 | 5,010,754 | 1,060,764 | 622,753 | 2,268,155 | 664,577 |
| 91 Montana State University | 27,648 | 9,052 | 7,153 | 3,833 | 7,610 | 0 |
| 92 Univ of Cal Santa Cruz | 26,347 | 13,855 | 828 | 825 | 9,076 | 1,763 |
| 93 University of Oregon | 26,346 | 20,151 | 269 | 218 | 4,622 | 1,086 |
| 94 Univ of New Hampshire | 25,994 | 14,455 | 1,291 | 1,464 | 5,922 | 2,862 |
| 95 Southern Ill U-Carbondale | 25,873 | 8,035 | 3,346 | 1,884 | 10,841 | 1,767 |
| 96 Univ of Maine Orono | 23,605 | 9,046 | 908 | 4,663 | 8,253 | 735 |
| 97 Med Univ of So Carolina | 23,128 | 10,910 | 0 | 2,264 | 5,810 | 4,144 |
| 98 N Mex Inst Mining & Tech | 22,911 | 5,610 | 1,626 | 10,194 | 4,908 | 573 |
| 99 SUNY Hlth Sci Ctr - Brkln | 22,873 | 14,574 | 2,400 | 1,084 | 1,652 | 3,163 |
| 100 University of Wyoming | 22,831 | 12,207 | 2,056 | 2,001 | 6,328 | 239 |
| Total, 1st 100 insts. | 9,874,559 | 5,128,649 | 1,080,641 | 651,183 | 2,333,177 | 680,909 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-36. R&D expenditures at public universities and colleges,
by source of funds: fiscal year 1990

(Dollars in thousands)

Page 3 of 3

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|------------------------------------|------------|---------------|----------------------|----------|---------------------|---------|
| 101 San Diego State Univ | 22,524 | 14,647 | 1,536 | 1,994 | 3,706 | 641 |
| 102 University of Mississippi | 22,071 | 14,973 | 33 | 1,250 | 4,012 | 1,803 |
| 103 SUNY at Albany | 22,034 | 14,497 | 157 | 727 | 5,858 | 795 |
| 104 The University of Alabama | 21,488 | 6,941 | 274 | 1,798 | 11,969 | 506 |
| 105 Univ of Nevada - Reno | 21,449 | 11,922 | 702 | 1,227 | 6,357 | 1,241 |
| 106 SUNY Col of Env Sci & For | 18,671 | 1,973 | 622 | 1,867 | 13,587 | 622 |
| 107 U of Neb Med Ctr at Omaha | 17,844 | 9,078 | 511 | 1,595 | 4,819 | 1,841 |
| 108 University of N Dakota | 17,498 | 14,398 | 133 | 1,556 | 1,022 | 389 |
| 109 US Naval Postgrad School | 17,391 | 17,333 | 0 | 0 | 0 | 58 |
| 110 Desert Research Institute | 16,852 | 8,767 | 1,716 | 3,329 | 2,844 | 196 |
| Total, 1st 110 insts. | 10,072,381 | 5,243,178 | 1,086,325 | 666,526 | 2,387,351 | 689,001 |
| 111 Michigan Tech University | 16,037 | 6,045 | 3,437 | 3,999 | 2,556 | 0 |
| 112 University of Louisville | 15,921 | 8,637 | 90 | 1,403 | 5,791 | 0 |
| 113 Florida A & M University | 15,847 | 13,110 | 2,592 | 145 | 0 | 0 |
| 114 U of MD Center For EES | 15,652 | 2,379 | 153 | 63 | 8,979 | 1,078 |
| 115 Univ of Wis-Milwaukee | 15,639 | 6,715 | 5,581 | 430 | 1,907 | 1,006 |
| 116 N J Inst of Technology | 15,225 | 2,731 | 3,422 | 1,710 | 586 | 1,776 |
| 117 Univ of Missouri Rolla | 14,285 | 3,863 | 835 | 2,186 | 6,141 | 1,260 |
| 118 Wright State University | 13,451 | 7,426 | 824 | 503 | 3,014 | 1,684 |
| 119 Ohio University | 12,982 | 4,140 | 3,816 | 454 | 4,298 | 274 |
| 120 CUNY City College | 12,973 | 10,554 | 716 | 442 | 0 | 1,261 |
| Total, 1st 120 insts. | 10,220,393 | 5,308,778 | 1,115,791 | 677,861 | 2,420,623 | 697,340 |
| 121 North Dakota State Univ | 12,468 | 6,417 | 928 | 1,289 | 2,997 | 837 |
| 122 Univ of Texas at Dallas | 12,075 | 5,888 | 1,266 | 740 | 2,799 | 1,382 |
| 123 Memphis State University | 12,073 | 2,666 | 3,051 | 239 | 5,551 | 566 |
| 124 Medical Col of Georgia | 12,052 | 8,045 | 207 | 1,920 | 841 | 1,039 |
| 125 U of Arkansas Med Sci Cam | 11,898 | 6,654 | 140 | 1,117 | 2,144 | 1,843 |
| 126 University of Lowell | 11,291 | 4,662 | 1,204 | 3,892 | 187 | 1,346 |
| 127 Univ of South Alabama | 11,105 | 7,237 | 396 | 1,553 | 1,919 | 0 |
| 128 Colorado School of Mines | 10,943 | 5,310 | 1,217 | 4,060 | 356 | 0 |
| 129 SUNY at Binghamton | 10,680 | 3,702 | 1,234 | 1,308 | 2,995 | 1,441 |
| 130 Old Dominion U Res Fdn | 10,579 | 7,036 | 2,962 | 581 | 0 | 0 |
| Total, 1st 130 insts. | 10,335,557 | 5,366,395 | 1,128,396 | 694,560 | 2,440,412 | 705,794 |
| 131 University of Akron | 10,372 | 3,005 | 1,733 | 3,873 | 1,761 | 0 |
| 132 San Jose State University | 10,086 | 7,370 | 1,108 | 599 | 727 | 282 |
| 133 Univ of North Texas | 9,741 | 1,974 | 3,749 | 2,407 | 1,611 | 0 |
| 134 Tenn Technological Univ | 9,631 | 1,286 | 4,377 | 945 | 1,663 | 1,360 |
| 135 College of William & Mary | 9,572 | 6,460 | 1,629 | 138 | 1,145 | 200 |
| 136 South Dakota State Univ | 9,511 | 3,666 | 4,785 | 282 | 550 | 228 |
| 137 Georgia State University | 8,942 | 3,621 | 455 | 270 | 3,718 | 878 |
| 138 Northern Illinois Univ | 8,930 | 3,251 | 422 | 2,351 | 2,906 | 0 |
| 139 Cleveland State Univ | 8,699 | 3,695 | 2,022 | 206 | 2,667 | 109 |
| 140 NC Ag & Tech State Univ | 8,657 | 7,503 | 538 | 0 | 0 | 616 |
| Total, 1st 140 insts. | 10,429,698 | 5,408,226 | 1,149,214 | 705,631 | 2,457,160 | 709,467 |
| 141 Univ of Southwestern LA | 8,319 | 874 | 1,488 | 0 | 5,129 | 828 |
| 142 Univ of Missouri Kan City | 8,310 | 2,767 | 771 | 1,383 | 3,117 | 272 |
| 143 George Mason University | 8,011 | 2,494 | 1,529 | 742 | 0 | 3,246 |
| 144 University of Montana | 7,332 | 3,468 | 732 | 433 | 2,537 | 162 |
| 145 Kent State University | 7,172 | 4,656 | 265 | 195 | 1,935 | 121 |
| 146 Med Col of Ohio at Toledo | 7,159 | 5,956 | 336 | 468 | 0 | 399 |
| 147 Alabama A & M University | 7,010 | 5,560 | 0 | 0 | 1,450 | 0 |
| 148 CUNY Hunter College | 6,928 | 4,531 | 0 | 360 | 1,489 | 548 |
| 149 Univ of Texas at El Paso | 6,889 | 5,451 | 946 | 339 | 153 | 0 |
| 150 Univ of P R-Med Sci Campus | 6,293 | 5,366 | 0 | 0 | 868 | 59 |
| Total, 1st 150 insts. | 10,503,121 | 5,449,349 | 1,155,281 | 709,551 | 2,473,838 | 715,102 |
| Total, all other sampled insts. | 199,314 | 114,988 | 25,299 | 18,653 | 30,590 | 9,784 |
| Estimated total non-sampled insts. | 96,947 | 43,873 | 22,323 | 10,044 | 15,398 | 5,309 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-37. R&D expenditures at private universities and colleges,
by source of funds: fiscal year 1990

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|----------------------------------|-----------|---------------|----------------------|----------|---------------------|---------|
| Total, all institutions | 5,525,227 | 4,002,834 | 135,053 | 396,982 | 497,458 | 492,900 |
| 1 Johns Hopkins Univ | 668,915 | 599,851 | 3,134 | 14,961 | 28,676 | 22,293 |
| 2 Mass Inst of Technology | 311,767 | 233,813 | 2,489 | 43,460 | 7,109 | 24,896 |
| 3 Stanford University | 305,700 | 251,446 | 4,491 | 15,774 | 16,342 | 21,689 |
| 4 Cornell University | 300,144 | 171,249 | 42,385 | 16,620 | 49,763 | 20,127 |
| 5 Harvard University | 220,812 | 154,090 | 1,146 | 10,565 | 16,766 | 38,245 |
| 6 Univ of Pennsylvania | 189,390 | 133,747 | 3,635 | 11,973 | 12,579 | 27,456 |
| 7 Columbia Univ Main Div | 182,769 | 156,270 | 2,635 | 5,618 | 4,352 | 13,894 |
| 8 Yale University | 180,706 | 144,962 | 934 | 7,014 | 11,464 | 16,332 |
| 9 Univ of Southern Cal | 169,102 | 123,714 | 2,389 | 18,896 | 24,103 | 0 |
| 10 Baylor Col of Medicine | 155,122 | 75,793 | 4,409 | 7,746 | 17,600 | 49,574 |
| Total, 1st 10 insts. | 2,684,427 | 2,044,935 | 63,605 | 152,627 | 188,754 | 234,506 |
| 11 Washington University | 151,249 | 105,759 | 3,109 | 14,132 | 14,324 | 13,925 |
| 12 Duke University | 140,708 | 106,053 | 1,391 | 12,252 | 9,757 | 11,255 |
| 13 Northwestern University | 131,979 | 61,812 | 1,081 | 5,325 | 49,949 | 13,812 |
| 14 University of Rochester | 129,011 | 105,644 | 6,165 | 6,419 | 1,801 | 8,982 |
| 15 University of Chicago | 117,955 | 96,327 | 194 | 1,202 | 10,210 | 10,022 |
| 16 New York University | 108,511 | 80,756 | 786 | 5,260 | 9,118 | 12,591 |
| 17 California Inst of Tech | 105,730 | 90,577 | 510 | 2,268 | 7,492 | 4,883 |
| 18 Carnegie-Mellon Univ | 100,201 | 64,550 | 6,350 | 20,295 | 1,881 | 7,125 |
| 19 University of Miami | 94,344 | 68,144 | 2,110 | 5,366 | 4,555 | 14,169 |
| 20 Case Western Reserve Univ | 93,384 | 70,515 | 1,546 | 4,954 | 6,348 | 10,021 |
| Total, 1st 20 insts. | 3,857,499 | 2,895,072 | 86,847 | 230,100 | 304,189 | 341,291 |
| 21 Princeton University | 91,514 | 51,559 | 1,164 | 4,964 | 24,479 | 9,348 |
| 22 Yeshiva University | 83,968 | 65,066 | 0 | 0 | 9,603 | 9,299 |
| 23 Emory University | 82,774 | 52,367 | 3,324 | 7,170 | 13,463 | 6,450 |
| 24 Rockefeller University | 75,245 | 36,788 | 268 | 4,918 | 16,805 | 16,466 |
| 25 Vanderbilt University | 75,062 | 66,747 | 43 | 2,313 | 1,955 | 4,004 |
| 26 Boston University | 73,655 | 60,459 | 171 | 4,611 | 0 | 8,414 |
| 27 Woods Hole Oceanographic Inst | 71,747 | 62,356 | 515 | 532 | 2,275 | 6,069 |
| 28 CUNY Mt Sinai Sch of Med | 63,752 | 43,607 | 971 | 4,053 | 5,327 | 9,794 |
| 29 Tulane University | 56,407 | 28,331 | 1,865 | 5,952 | 15,785 | 4,474 |
| 30 Georgetown University | 50,867 | 36,093 | 155 | 3,362 | 7,418 | 3,839 |
| Total, 1st 30 insts. | 4,582,490 | 3,398,445 | 95,323 | 267,975 | 401,299 | 419,448 |
| 31 Rensselaer Polytech Inst | 47,363 | 22,809 | 3,255 | 11,418 | 4,267 | 5,614 |
| 32 Tufts University | 47,009 | 38,290 | 115 | 7,761 | 8,21E | 22E |
| 33 Brown University | 46,763 | 36,919 | 317 | 3,307 | 3,801 | 2,419 |
| 34 Dartmouth College | 43,737 | 30,135 | 2,694 | 2,251 | 5,578 | 3,079 |
| 35 Wake Forest University | 39,654 | 30,182 | 143 | 5,642 | 1,490 | 2,197 |
| 36 University of Dayton | 36,177 | 29,044 | 551 | 4,790 | 1,522 | 2,270 |
| 37 Medical College of Wis | 34,622 | 21,594 | 1,185 | 3,189 | 3,404 | 5,250 |
| 38 Syracuse University | 33,811 | 18,924 | 1,626 | 3,851 | 6,273 | 3,137 |
| 39 George Washington Univ | 32,372 | 26,817 | 165 | 988 | 1,490 | 2,912 |
| 40 Thomas Jefferson Univ | 30,969 | 22,451 | 0 | 8,518 | 0 | 0 |
| Total, 1st 40 insts. | 4,974,967 | 3,675,610 | 105,374 | 319,690 | 429,945 | 444,348 |
| 41 Brandeis University | 30,881 | 18,819 | 467 | 0 | 4,725 | 6,870 |
| 42 Lehigh University | 27,255 | 11,242 | 2,797 | 8,030 | 4,580 | 606 |
| 43 Rice University | 26,267 | 19,997 | 1,211 | 3,616 | 0 | 1,443 |
| 44 Rush University | 21,284 | 6,083 | 1,083 | 3,622 | 6,438 | 4,058 |
| 45 Drexel University | 20,079 | 6,761 | 1,619 | 3,888 | 7,811 | 0 |
| 46 University of Notre Dame | 19,373 | 12,867 | 212 | 3,965 | 2,329 | 0 |
| 47 The Medical Col of Penna | 18,643 | 11,704 | 3,246 | 1,263 | 2,429 | 2,001 |
| 48 Howard University | 17,382 | 13,067 | 117 | 2,869 | 1,313 | 16 |
| 49 St Louis University | 17,157 | 14,106 | 216 | 1,148 | 101 | 1,586 |
| 50 Northeastern University | 14,347 | 10,217 | 359 | 1,711 | 241 | 1,819 |
| Total, 1st 50 insts. | 5,187,635 | 3,800,473 | 116,701 | 349,802 | 457,912 | 462,747 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-37. R&D expenditures at private universities and colleges,
by source of funds: fiscal year 1990

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | Federal Govt. | State & local govts. | Industry | Institutional funds | Other |
|------------------------------------|-----------|---------------|----------------------|----------|---------------------|---------|
| 51 Southern Methodist Univ | 13,600E | 11,000E | 800E | 300E | 1,000E | 500E |
| 52 Hahnemann University | 13,595 | 8,244 | 337 | 232 | 1,593E | 3,189E |
| 53 New York Medical College | 13,244 | 9,028 | 375 | 1,706 | 0 | 2,135 |
| 54 Loyola Univ - Chicago | 12,260 | 6,203 | 221 | 1,398 | 2,314 | 2,124 |
| 55 Brigham Young University | 11,608 | 5,357 | 1,360 | 1,845 | 2,755 | 291 |
| 56 Polytechnic University | 10,919 | 7,025 | 1,201 | 2,278 | 265 | 150 |
| 57 Eastern VA Medical School | 10,496 | 7,782 | 64 | 0 | 0 | 2,650 |
| 58 University of Denver | 10,102 | 7,476 | 200 | 1,623 | 803 | 0 |
| 59 Albany Med Ctr Grad Sch | 9,431 | 6,073 | 0 | 719 | 1,131 | 1,508 |
| 60 Oregon Grad Inst Sci/Tech | 9,262 | 6,837 | 52 | 1,591 | 765 | 17 |
| Total, 1st 60 insts. | 5,302,152 | 3,875,498 | 21,311 | 361,494 | 468,538 | 475,311 |
| 61 Creighton University | 8,929 | 2,405 | 225 | 6,084 | 215 | 0 |
| 62 Clarkson University | 8,392 | 3,841 | 1,239 | 1,638 | 1,674 | 0 |
| 63 Boston College | 8,352 | 6,798 | 1 | 210 | 371 | 672 |
| 64 Loma Linda University | 7,547 | 3,349 | 0 | 3,266 | 742 | 190 |
| 65 Catholic Univ of America | 7,398 | 6,783 | 0 | 615 | 0 | 0 |
| 66 Florida Inst of Tech | 7,003 | 1,251 | 3,067 | 1,205 | 1,243 | 237 |
| 67 Illinois Inst of Tech | 6,793 | 3,887 | 174 | 1,819 | 913 | 0 |
| 68 Meharry Medical College | 6,663 | 6,591 | 0 | 38 | 185 | 49 |
| 69 Stevens Institute of Tech | 6,146 | 2,960 | 982 | 960 | 1,194 | 50 |
| 70 Morehouse School of Med | 5,891 | 5,149 | 0 | 50 | 192 | 500 |
| Total, 1st 70 insts. | 5,374,966 | 3,918,312 | 126,999 | 377,379 | 475,267 | 477,009 |
| 71 Inst Paper Sci and Tech | 5,761 | 965 | 0 | 172 | 3,936 | 688 |
| 72 Union College (NY) | 5,459 | 944 | 444 | 375 | 0 | 3,696 |
| 73 Tuskegee University | 5,089 | 4,783 | 0 | 110 | 129 | 67 |
| 74 U Hlth Sci/Chgo Med Sch | 4,695 | 3,547 | 0 | 267 | 484 | 397 |
| 75 Worcester Poly Institute | 4,683 | 2,365 | 185 | 1,632 | 288 | 213 |
| 76 Mercer University | 4,656 | 3,590 | 65 | 355 | 646 | 0 |
| 77 University of Tulsa | 4,325 | 1,037 | 414 | 2,330 | 420 | 124 |
| 78 American University | 4,127 | 3,532 | 28 | 183 | 318 | 66 |
| 79 Alfred University | 4,067 | 3,444 | 1,090 | 1,672 | 917 | 44 |
| 80 Wesleyan University | 4,021 | 1,949 | 318 | 0 | 1,471 | 283 |
| Total, 1st 80 insts. | 5,421,849 | 3,941,368 | 129,543 | 384,475 | 483,876 | 482,587 |
| 81 Marquette University | 3,262 | 1,855 | 0 | 1,239 | 168 | 0 |
| 82 Fairleigh Dickinson Univ | 3,183 | 2,364 | 713 | 19 | 14 | 73 |
| 83 Chas R Drew U of Med & Sc | 3,098I | 3,098I | 0I | 0I | 0I | 0I |
| 84 New York Inst Technology | 3,087 | 0 | 0 | 475 | 2,612 | 0 |
| 85 Texas Col of Osteo Med | 2,767 | 2,031 | 186 | 295 | 0 | 255 |
| 86 Fordham University | 2,501 | 1,723 | 348 | 0 | 105 | 325 |
| 87 Hampton University | 2,307 | 2,307 | 0 | 0 | 0 | 0 |
| 88 Institute of Textile Tech | 1,921 | 0 | 0 | 1,869 | 52 | 0 |
| 89 Xavier University of LA | 1,902 | 1,902 | 0 | 0 | 0 | 0 |
| 90 Bryn Mawr College | 1,854 | 1,252 | 128 | 0 | 469 | 5 |
| Total, 1st 90 insts. | 5,447,731 | 3,957,900 | 130,918 | 388,372 | 487,296 | 483,245 |
| 91 Texas Christian Univ | 1,823 | 1,362 | 0 | 399 | 62 | 0 |
| 92 Amherst College | 1,792 | 1,233 | 0 | 145 | 414 | 0 |
| 93 Occidental College | 1,627 | 300 | 696 | 208 | 148 | 275 |
| 94 Nova University | 1,601 | 1,341 | 144 | 116 | 0 | 0 |
| 95 Santa Clara University | 1,569 | 550 | 0 | 82 | 835 | 102 |
| 96 University of Detroit | 1,526 | 245 | 0 | 1,244 | 37 | 0 |
| 97 Seton Hall University | 1,515I | 1,302I | 0I | 213I | 0I | 0I |
| 98 Wentworth Inst of Tech | 1,435 | 1,435 | 0 | 0 | 0 | 0 |
| 99 Smith College | 1,398 | 298 | 118 | 0 | 361 | 739 |
| 100 Villanova University | 1,390 | 943 | 118 | 100 | 229 | 0 |
| Total, 1st 100 insts. | 5,463,407 | 3,966,909 | 131,876 | 390,879 | 489,382 | 484,361 |
| Total, all other sampled insts. | 31,814 | 19,729 | 622 | 2,769 | 4,275 | 4,419 |
| Estimated total non-sampled insts. | 30,006 | 16,196 | 2,555 | 3,334 | 3,801 | 4,120 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 1 of 4

| Institution ranking | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
|-------------------------------|-----------|---------|---------|---------|---------|---------|---------|---------|
| Total, all institutions | 1,135,229 | 997,989 | 870,844 | 789,238 | 699,157 | 559,224 | 474,750 | 388,105 |
| 1 Mass Inst of Technology | 43,460 | 39,650 | 33,256 | 35,064 | 34,764 | 32,007 | 26,458 | 17,944 |
| 2 Pennsylvania State Univ | 34,806 | 30,256 | 24,068 | 20,114 | 16,905 | 15,715 | 12,995 | 12,445 |
| 3 University of Michigan | 27,128 | 22,023 | 14,782 | 14,451 | 12,481 | 11,677 | 7,559 | 5,984 |
| 4 Texas A & M University | 26,197 | 21,204 | 18,534 | 13,398 | 7,944 | 11,731 | 5,601 | 6,483 |
| 5 University of Washington | 22,215 | 19,135 | 16,580 | 18,564 | 16,493 | 8,887 | 6,801 | 6,176 |
| 6 N C State Univ at Raleigh | 21,398 | 21,735 | 18,580 | 11,748 | 10,452 | 8,249 | 3,026 | 3,246 |
| 7 Georgia Institute of Tech | 21,256 | 21,346 | 21,567 | 23,626 | 21,344 | 18,730 | 18,131 | 13,255 |
| 8 Univ of Ill Urbana | 20,762 | 15,785 | 13,686 | 11,414 | 8,831 | 7,506 | 4,922 | 3,448 |
| 9 Carnegie-Mellon Univ | 20,295 | 18,976 | 17,092 | 16,130 | 17,591 | 11,780 | 12,603 | 7,922 |
| 10 Univ of Southern Cal | 18,896 | 14,716 | 11,805 | 9,999 | 6,376 | 5,361 | 4,800 | 2,012 |
| Total, 1st 10 insts. | 256,413 | 224,826 | 189,950 | 174,510 | 153,781 | 131,643 | 102,896 | 78,915 |
| 11 University of Minnesota | 18,086 | 12,389 | 10,670 | 11,056 | 11,157 | 8,135 | 8,053 | 5,962 |
| 12 Cornell University | 16,620 | 16,627 | 15,806 | 17,169 | 14,256 | 12,526 | 13,229 | 9,206 |
| 13 Stanford University | 15,774 | 13,764 | 11,628 | 10,979 | 8,833 | 8,044 | 9,043 | 6,430 |
| 14 Johns Hopkins Univ | 14,961 | 11,013 | 9,247 | 7,755 | 3,538 | 3,076 | 2,500E | 2,000E |
| 15 Ohio State University | 14,744 | 20,244 | 10,910 | 9,278 | 7,826 | 7,140 | 6,559 | 6,431 |
| 16 Univ of MD College Park | 14,229 | 12,940 | 11,451 | 10,149E | 8,124E | 7,374E | 7,174E | 6,963E |
| 17 Washington University | 14,132 | 13,500 | 12,839 | 12,016 | 11,352 | 9,617 | 8,339 | 5,601 |
| 18 Univ of MD Balt Prof Sch | 12,791 | 11,183 | 8,017 | 7,652 | 6,827 | 4,414 | 3,402 | 2,861 |
| 19 Duke University | 12,252 | 12,551 | 12,379 | 8,085 | 7,300 | 5,193 | 4,622 | 3,166 |
| 20 University of Florida | 12,237 | 10,579 | 9,529 | 9,404 | 7,902 | 8,254 | 5,000 | 4,345 |
| Total, 1st 20 insts. | 402,239 | 359,616 | 301,426 | 278,053 | 240,896 | 205,416 | 170,817 | 131,405 |
| 21 Univ of Wis-Madison | 12,123 | 11,035 | 9,556 | 8,586 | 8,007 | 7,217 | 5,451 | 4,502 |
| 22 Univ of Pennsylvania | 11,973 | 9,582 | 6,230 | 7,483 | 7,299 | 5,685 | 3,013 | 1,821 |
| 23 Univ of Massachusetts | 11,678 | 11,480 | 9,470 | 8,560 | 7,427 | 5,752 | 4,729 | 3,681 |
| 24 Purdue University | 11,632 | 11,451 | 10,325 | 9,579 | 8,776 | 9,583 | 9,232 | 9,269 |
| 25 Rensselaer Polytech Inst | 11,418 | 9,066 | 9,014 | 8,006 | 5,813 | 5,262 | 4,785 | 3,589 |
| 26 VA Polytech Inst & St U | 11,394 | 9,825 | 9,058 | 7,010 | 5,463 | 5,924 | 5,818 | 5,988 |
| 27 Univ of Cal Berkeley 1/ | 10,892 | 8,480 | 8,267 | 6,580 | 6,143 | 0 | 0 | 0 |
| 28 Harvard University | 10,565 | 10,461 | 9,093 | 7,778E | 6,723 | 5,410E | 4,883E | 4,695E |
| 29 University of Arizona | 10,246 | 9,729 | 12,245 | 11,638 | 11,158 | 9,402 | 7,837 | 7,956 |
| 30 N Mex Inst Mining & Tech | 10,194 | 7,695 | 6,853 | 5,418 | 3,335 | 2,538 | 1,739 | 1,262 |
| Total, 1st 30 insts. | 514,354 | 458,420 | 391,537 | 358,691 | 312,040 | 260,189 | 218,304 | 174,168 |
| 31 West Virginia University | 10,037 | 3,953 | 754 | 862 | 899 | 588 | 673 | 594 |
| 32 Univ of Cal San Diego 1/ | 9,135 | 6,824 | 5,055 | 5,902 | 5,995 | 0 | 0 | 0 |
| 33 Univ of Missouri Columbia | 9,130 | 6,434 | 4,252 | 4,206 | 4,562 | 3,402 | 2,128 | 1,492 |
| 34 UT SW Medical Ctr-Dallas | 8,537 | 6,938 | 5,915 | 5,566 | 4,295 | 3,967 | 3,620 | 2,792 |
| 35 Thomas Jefferson Univ | 8,518 | 8,094 | 7,465 | 6,287 | 5,095 | 4,740 | 3,681 | 4,290 |
| 36 Univ of Cal Los Angeles 1/ | 8,310 | 7,548 | 8,492 | 14,360 | 12,659 | 0 | 0 | 0 |
| 37 Lehigh University | 8,030 | 7,596 | 7,479 | 6,731 | 5,514 | 4,286 | 1,865 | 1,488 |
| 38 Tufts University | 7,761E | 8,010E | 8,375 | 6,314E | 9,821 | 8,281 | 6,761 | 5,241 |
| 39 Baylor Col of Medicine | 7,746 | 7,263 | 5,329 | 4,879 | 3,772 | 4,241 | 3,932 | 4,726 |
| 40 Clemson University | 7,595 | 3,849 | 3,791 | 3,105 | 2,963 | 1,800 | 2,009 | 2,223 |
| Total, 1st 40 insts. | 599,153 | 524,929 | 448,444 | 416,903 | 358,776 | 284,041 | 236,888 | 192,297 |
| 41 Univ of Cal Davis 1/ | 7,461 | 8,039 | 6,975 | 5,324 | 4,510 | 0 | 0 | 0 |
| 42 Univ. Of Tennessee System | 7,449 | 6,636 | 6,312 | 4,870 | 3,755 | 3,521 | 2,835 | 2,447 |
| 43 Univ. of Colorado | 7,426 | 6,728 | 5,234 | 4,502 | 3,567 | 2,234 | 1,809 | 1,542 |
| 44 Arizona State University | 7,354 | 2,382 | 2,832 | 5,575 | 3,061 | 2,441 | 1,588 | 1,373 |
| 45 New Mexico State Univ | 7,293 | 6,242 | 7,844 | 9,847 | 6,985 | 6,237E | 5,121E | 0 |
| 46 Univ Alabama Birmingham | 7,241 | 6,602 | 6,153 | 4,544 | 4,508 | 3,705 | 3,117 | 2,265 |
| 47 Emory University | 7,170 | 6,169 | 4,701 | 3,350 | 2,427 | 2,395 | 2,395 | 1,957 |
| 48 Yale University | 7,014 | 6,563 | 5,649 | 5,563 | 1,790 | 1,729 | 1,637 | 1,316 |
| 49 University of Iowa | 6,827 | 10,301 | 5,527 | 2,615 | 1,706 | 1,556 | 1,788 | 1,490 |
| 50 Rutgers the St Univ of NJ | 6,754 | 6,087 | 4,498 | 3,087 | 2,594 | 2,108 | 1,817 | 1,694 |
| Total, 1st 50 insts. | 671,142 | 590,678 | 504,169 | 466,180 | 393,679 | 309,967 | 258,995 | 206,381 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

107

Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 2 of 4

| Institution ranking | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
|-------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 51 University of Kentucky | 6,720 | 5,819 | 4,191 | 6,312 | 8,173 | 4,768 | 4,378 | 3,007 |
| 52 University of Pittsburgh | 6,481 | 9,406 | 8,738 | 6,547 | 5,428 | 4,069 | 2,813 | 2,919 |
| 53 University of Rochester | 6,419 | 4,913 | 4,705 | 6,267 | 6,714 | 6,896 | 7,134 | 6,481 |
| 54 University of Virginia | 6,406 | 5,768 | 4,733 | 3,260 | 2,941 | 2,347 | 2,399 | 2,342 |
| 55 Mississippi State Univ | 6,389 | 3,886 | 3,430 | 2,823 | 2,081 | 1,606 | 1,250 | 1,229 |
| 56 University of Connecticut | 6,388 | 4,996 | 4,310 | 3,729 | 4,090 | 4,572 | 3,537 | 1,743 |
| 57 U Tex Hlth Sci Ctr S Anto | 6,166 | 5,535 | 4,908 | 4,404 | 4,302 | 3,458 | 2,497 | 2,237 |
| 58 Creighton University | 6,084 | 5,229 | 5,589 | 4,143 | 2,793 | 1,345 | 1,105 | 886 |
| 59 Tulane University | 5,952 | 5,577 | 5,418 | 4,945 | 4,689 | 4,072 | 3,372 | 2,410 |
| 60 Wayne State University | 5,875 | 3,850 | 2,897 | 2,761 | 1,717 | 1,241 | 884 | 894 |
| Total, 1st 60 insts. | 734,022 | 645,657 | 553,088 | 511,371 | 436,607 | 344,341 | 288,364 | 230,529 |
| 61 University of Georgia | 5,797 | 4,877 | 5,659 | 4,982 | 4,360 | 3,729 | 4,356 | 4,486 |
| 62 Wake Forest University | 5,642 | 4,859 | 4,183 | 2,402 | 1,768 | 1,509 | 1,254 | 993 |
| 63 Columbia Univ Main Div | 5,618 | 5,408 | 4,841 | 3,915 | 4,086 | 4,027 | 3,49 | 336 |
| 64 Auburn University | 5,541 | 4,111 | 2,615 | 3,112 | 2,805 | 2,699 | 2,604 | 1,904 |
| 65 Iowa St U of Sci & Tech | 5,525 | 4,408 | 3,961 | 3,597 | 3,043 | 3,131 | 2,925 | 2,957 |
| 66 University of Miami | 5,366 | 4,702 | 4,907 | 7,300 | 8,897 | 7,892 | 5,600 | 4,384 |
| 67 Northwestern University | 5,325 | 5,289 | 3,532 | 3,101 | 2,256 | 1,690 | 1,088 | 1,365 |
| 68 Univ of Cal San Fran 1/ | 5,276 | 6,226 | 5,127 | 4,008 | 4,119 | 0 | 0 | 0 |
| 69 New York University | 5,260 | 4,066 | 3,677 | 3,036 | 4,292 | 3,742 | 3,240 | 2,649 |
| 70 Univ of Ill Chicago | 5,157 | 5,333 | 2,664 | 1,728 | 1,490 | 909 | 731 | 1,022 |
| Total, 1st 70 insts. | 788,529 | 694,936 | 594,254 | 548,552 | 473,723 | 373,669 | 310,511 | 250,625 |
| 71 U Tex Hlth Sci Ctr Houston | 5,142 | 3,266 | 3,385 | 3,494 | 3,661 | 1,217 | 883 | 707 |
| 72 Princeton University | 4,964 | 5,640 | 4,487 | 4,122 | 2,989 | 1,184 | 958 | 805 |
| 73 Case Western Reserve Univ | 4,954 | 2,915 | 3,975 | 3,433 | 2,992 | 2,408 | 1,802 | 1,720 |
| 74 Rockefeller University | 4,918 | 3,453 | 3,764 | 3,476 | 3,321 | 2,861 | 2,817 | 2,661 |
| 75 Virginia Commonwealth Univ | 4,835 | 3,910 | 3,283 | 3,192 | 3,195 | 2,019 | 1,412 | 350 |
| 76 University of Dayton | 4,790 | 4,164 | 4,013 | 3,332 | 2,786 | 2,556 | 2,226 | 2,108 |
| 77 Texas Tech University | 4,708 | 4,697 | 4,513 | 4,123 | 4,213 | 3,650 | 2,663 | 1,910 |
| 78 Univ of Maine Jrono | 4,663 | 4,002 | 2,823 | 2,051 | 2,856 | 1,559 | 2,320 | 1,404 |
| 79 Boston University | 4,611 | 2,555 | 2,379 | 2,276 | 2,076 | 1,994 | 906 | 812 |
| 80 Michigan State University | 4,557 | 4,068 | 3,615 | 3,137 | 2,969 | 2,686 | 2,446 | 619 |
| Total, 1st 80 insts. | 836,671 | 733,606 | 630,491 | 581,191 | 503,781 | 395,803 | 328,974 | 263,721 |
| 81 University of Kansas | 4,473 | 2,809 | 2,934 | 3,259 | 2,527 | 1,426 | 1,109 | 795 |
| 82 University of Cincinnati | 4,468 | 4,160 | 3,449 | 2,999 | 1,655 | 1,880 | 1,388 | 1,262 |
| 83 University of Delaware | 4,397 | 4,073 | 3,558 | 3,659 | 3,551 | 2,809 | 2,752 | 3,075 |
| 84 Univ of South Florida | 4,250 | 327 | 144 | 117 | 84 | 75 | 192 | 145 |
| 85 Univ of Alaska Fairbanks | 4,100 | 3,039 | 2,672 | 3,024 | 2,936 | 2,878 | 2,819 | 3,143 |
| 86 Colorado School of Mines | 4,060 | 3,793 | 2,647 | 1,995 | 2,516 | 2,160 | 2,356 | 1,609 |
| 87 CUNY Mt Sinai Sch of Med | 4,053 | 3,732 | 2,982 | 2,870 | 950 | 1,426 | 1,795 | 1,145 |
| 88 University of New Mexico | 4,022 | 2,496 | 1,140 | 4,858 | 4,450 | 3,875 | 3,523 | 3,084 |
| 89 Michigan Tech University | 3,999 | 3,584 | 2,901 | 2,740 | 2,490 | 2,511 | 1,901 | 1,433 |
| 90 University of Notre Dame | 3,965 | 4,204 | 3,114 | 2,824 | 2,743 | 2,502 | 1,874 | 1,237 |
| Total, 1st 90 insts. | 878,458 | 765,823 | 656,032 | 608,836 | 527,683 | 417,345 | 348,653 | 280,669 |
| 91 University of Lowell | 3,892 | 2,849 | 2,626 | 1,201 | 816 | 1,059 | 1,519 | 1,360 |
| 92 Drexel University | 3,888 | 4,202 | 2,928 | 2,468 | 2,940 | 2,237 | 1,562 | 611 |
| 93 University of Akron | 3,873 | 2,591 | 2,422 | 2,426 | 2,256 | 1,056 | 846 | 322 |
| 94 Syracuse University | 3,851 | 3,937 | 2,595 | 3,975 | 2,397 | 2,298 | 1,120 | 943 |
| 95 Montana State University | 3,833 | 2,902 | 2,770 | 2,454 | 2,138 | 1,628 | 1,818 | 1,054 |
| 96 Univ of Central Florida | 3,813 | 2,580 | 1,864 | 1,990 | 1,940 | 1,514 | 1,273 | 1,032 |
| 97 Louisiana State Univ | 3,759 | 2,120 | 2,348 | 1,481 | 998 | 1,372 | 3,247 | 2,503 |
| 98 University of Idaho | 3,731 | 3,788 | 3,339 | 2,630 | 2,670 | 2,793 | 2,567 | 2,260 |
| 99 Rush University | 3,622 | 3,714 | 2,139 | 1,320 | 1,447 | 738 | 682 | 753 |
| 100 Rice University | 3,616 | 3,232 | 1,195 | 1,182 | 1,066 | 1,054 | 773 | 683 |
| Total, 1st 100 insts. | 916,336 | 797,738 | 680,258 | 629,963 | 551,351 | 433,094 | 364,060 | 292,190 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

(Dollars in thousands)

Page 3 of 4

| Institution ranking | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
|-------------------------------|-----------|---------|---------|---------|---------|---------|---------|---------|
| 101 Univ of Texas at Austin | 3,507 | 2,694 | 3,175 | 3,161 | 2,677 | 2,136 | 1,932 | 1,750 |
| 102 U of VT & State Agr Coll | 3,473 | 3,486 | 3,139 | 2,877 | 3,331 | 2,613 | 2,130 | 1,665 |
| 103 University of Utah | 3,443 | 2,700 | 2,248 | 2,268 | 1,819 | 1,706 | 1,659 | 1,888 |
| 104 Univ of Nebraska-Lincoln | 3,394 | 2,675 | 2,204 | 1,938 | 1,985 | 1,721 | 1,545 | 1,203 |
| 105 Georgetown University | 3,362 | 4,370 | 2,972 | 2,536 | 1,906 | 2,561 | 2,531 | 1,234 |
| 106 Desert Research Institute | 3,329 | 3,079 | 2,868 | 2,289 | 2,972 | 2,402 | 2,585 | 2,375 |
| 107 Brown University | 3,307 | 4,291 | 5,086 | 4,250 | 3,848 | 3,000 | 2,227 | 1,527 |
| 108 Loma Linda University | 3,266 | 1,964 | 1,390 | 420 | 323 | 350 | 210 | 1561 |
| 109 Medical College of Wis | 3,189 | 3,684 | 3,243 | 2,018 | 1,422 | 1,131 | 1,043 | 933 |
| 110 Oregon State University | 3,167 | 2,285 | 1,944 | 1,890 | 4,650 | 4,245 | 3,519 | 3,424 |
| Total, 1st 110 insts. | 949,773 | 828,966 | 708,527 | 654,610 | 576,284 | 454,959 | 383,441 | 308,345 |
| 111 Univ of Cal Irvine 1/ | 3,115 | 4,582 | 5,181 | 4,722 | 4,295 | 0 | 0 | 0 |
| 112 Univ of South Carolina | 3,072 | 1,968 | 3,053 | 1,531 | 1,266 | 1,442 | 798 | 585 |
| 113 Univ of Ark Fayetteville | 2,947 | 2,444 | 3,112 | 2,353 | 2,385 | 2,093 | 1,391 | 1,514 |
| 114 Univ of Med & Dent of N J | 2,908 | 2,583 | 1,983 | 1,421 | 1,322E | 855E | 715E | 674E |
| 115 Colorado State University | 2,883 | 2,432 | 1,525 | 1,178 | 1,423 | 6,467 | 6,750 | 6,426 |
| 116 Howard University | 2,869 | 1,867 | 2,116 | 1,112 | 1,026 | 1,034 | 38 | 23 |
| 117 Temple University | 2,707 | 2,544 | 3,699 | 0 | 0 | 274 | 195 | 308 |
| 118 Univ of Cal Santa Barb 1/ | 2,655 | 2,645 | 2,108 | 1,970 | 2,097 | 0 | 0 | 0 |
| 119 University of Oklahoma | 2,562 | 1,991 | 1,950 | 2,026 | 2,513 | 2,328 | 2,075 | 2,260 |
| 120 Univ Alabama Huntsville | 2,529 | 2,170 | 1,369 | 992 | 914 | 649 | 597 | 427 |
| Total, 1st 120 insts. | 978,020 | 854,192 | 734,623 | 671,915 | 594,025 | 470,101 | 396,000 | 320,562 |
| 121 Washington State Univ | 2,523 | 2,258 | 3,335 | 2,619 | 2,261 | 1,465 | 1,581 | 1,517 |
| 122 Kans St U - Ag & App Sci | 2,483 | 1,790 | 2,031 | 1,515 | 779 | 721 | 848 | 1,120 |
| 123 SUNY at Stony Brook | 2,426 | 3,093 | 1,624 | 1,269 | 1,382 | 1,412 | 1,159 | 898 |
| 124 Univ of North Texas | 2,407 | 1,004 | 783 | 714 | 353 | 347 | 443 | 341 |
| 125 Northern Illinois Univ | 2,351 | 1,656 | 1,152 | 890 | 824 | 624 | 587 | 386 |
| 126 University of Tulsa | 2,330 | 2,020 | 2,093 | 1,808 | 1,457 | 1,169E | 1,274E | 702 |
| 127 Indiana University | 2,316 | 2,591 | 2,658 | 2,597 | 3,325 | 2,718 | 2,361 | 2,402 |
| 128 Vanderbilt University | 2,313 | 2,759 | 7,938 | 5,313 | 4,556 | 3,376 | 3,040 | 2,403 |
| 129 Univ of Tex at Arlington | 2,286 | 2,407 | 1,858 | 1,138 | 776 | 739 | 820 | 837 |
| 130 Polytechnic University | 2,278 | 2,821 | 1,405 | 1,245 | 500 | 408 | 904 | 0 |
| Total, 1st 130 insts. | 1,001,733 | 876,591 | 759,500 | 693,023 | 610,038 | 483,080 | 409,017 | 331,168 |
| 131 California Inst of Tech | 2,268 | 3,567 | 3,273 | 3,436 | 3,806 | 2,678 | 3,798 | 2,445 |
| 132 Med Univ of So Carolina | 2,264 | 2,089 | 1,849 | 1,548 | 1,379 | 1,143 | 854 | 414 |
| 133 U Tex Med Brnch Galveston | 2,260 | 1,847 | 1,781 | 1,146 | 1,274 | 917 | 604 | 500 |
| 134 Dartmouth College | 2,251 | 1,768 | 1,273 | 1,024 | 930 | 659 | 566 | 325 |
| 135 Univ of Missouri Rolla | 2,186 | 2,385 | 3,280 | 1,153 | 1,338 | 1,416 | 1,095 | 1,281 |
| 136 Univ of NC at Chapel Hill | 2,179 | 579 | 409 | 509 | 1,138 | 1,177 | 1,047 | 594 |
| 137 SUNY at Buffalo | 2,118 | 1,759 | 1,178 | 779 | 234 | 243 | 0 | 0 |
| 138 Utah State University | 2,089 | 1,315 | 1,529 | 1,316 | 1,440 | 1,365 | 1,306 | 1,141 |
| 139 University of Wyoming | 2,001 | 1,535 | 1,800 | 1,216 | 1,779 | 1,821 | 1,734 | 1,740 |
| 140 San Diego State Univ | 1,994 | 2,303 | 1,815 | 1,353 | 1,012 | 1,055 | 326 | 254 |
| Total, 1st 140 insts. | 1,023,343 | 895,738 | 777,687 | 706,503 | 624,368 | 495,554 | 420,347 | 339,862 |
| 141 Oklahoma State University | 1,963 | 1,645 | 3,761 | 3,170 | 3,054 | 2,972 | 2,631 | 2,546 |
| 142 Medical Col of Georgia | 1,920 | 1,810 | 1,078 | 1,011 | 955 | 705 | 544 | 375 |
| 143 University of Toledo | 1,885 | 1,152 | 703 | 481 | 260 | 100 | 33 | 102 |
| 144 Southern Ill U-Carbondale | 1,884 | 1,504 | 1,117 | 1,191 | 1,595 | 1,811 | 1,575 | 2,519 |
| 145 Institute of Textile Tech | 1,869 | 1,311 | 1,678 | 1,238 | 1,172 | 1,109 | 1,046 | 983 |
| 146 SUNY Col of Env Sci & For | 1,867 | 1,716 | 1,493 | 1,153 | 991 | 932 | 826 | 767 |
| 147 Brigham Young University | 1,845 | 1,488 | 1,438 | 2,150 | 2,075 | 2,001 | 1,787 | 1,207 |
| 148 Illinois Inst of Tech | 1,819 | 2,089 | 1,465 | 1,002 | 954 | 870 | 294 | 331 |
| 149 The University of Alabama | 1,798 | 2,082 | 1,448 | 1,354 | 1,800 | 852 | 505 | 339 |
| 150 Northeastern University | 1,711 | 953 | 730 | 561 | 525 | 615 | 589 | 549 |
| Total, 1st 150 insts. | 1,041,904 | 911,488 | 792,598 | 719,814 | 637,749 | 507,521 | 430,177 | 349,580 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-38. Industry-sponsored R&D expenditures at universities and colleges: fiscal years 1983-90

[Dollars in thousands]

Page 4 of 4

| Institution ranking | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 |
|------------------------------------|-----------|---------|---------|---------|---------|---------|---------|---------|
| 151 N J Inst of Technology | 1,710 | 1,125 | 1,011 | 1,026 | 680 | 297 | 105 | 100 |
| 152 New York Medical College | 1,706 | 878 | 2,287 | 800 | 656 | 586 | 204 | 469 |
| 153 East Carolina University | 1,692 | 1,584 | 1,044 | 1,029 | 856 | 777 | 698 | 423 |
| 154 Alfred University | 1,672 | 1,475 | 1,432 | 1,323 | 984 | 496 | 424 | 579 |
| 155 Clarkson University | 1,638 | 1,282 | 978 | 1,113 | 1,288 | 848 | 708 | 755 |
| 156 Worcester Poly Institute | 1,632 | 1,683 | 2,028 | 1,815 | 2,090 | 2,126 | 2,163 | 2,437 |
| 157 University of Denver | 1,623 | 1,428 | 1,638 | 1,027 | 1,260 | 1,444 | 1,628 | 1,811 |
| 158 U of Neb Med Ctr at Omaha | 1,595 | 1,194 | 792 | 583 | 558 | 549 | 679 | 498 |
| 159 Oregon Grad Inst Sci/Tech | 1,591 | 1,573 | 1,225 | 1,722 | 1,746 | 1,710 | 1,732 | 1,456 |
| 160 Univ of Hawaii-Manoa | 1,585 | 799 | 378 | 261 | 508 | 250 | 380 | 723 |
| Total, 1st 160 insts. | 1,058,348 | 924,509 | 805,401 | 730,513 | 648,375 | 516,604 | 438,898 | 358,831 |
| 161 University of N Dakota | 1,556 | 1,264 | 1,496 | 1,583 | 1,180 | 1,062 | 947 | 696 |
| 162 Univ of South Alabama | 1,553 | 1,277 | 1,118 | 914 | 896 | 1,010 | 948 | 838 |
| 163 U of Houston | 1,529 | 1,375 | 1,940 | 1,959 | 2,851 | 1,925 | 1,500 | 1,239 |
| 164 Univ of New Hampshire | 1,464 | 1,183 | 1,124 | 1,057 | 648 | 895 | 497 | 248 |
| 165 University of Louisville | 1,403 | 1,697 | 400 | 403 | 0 | 0 | 0 | 322 |
| 166 Loyola Univ - Chicago | 1,398 | 1,305 | 475 | 407 | 639 | 523 | 618 | 661 |
| 167 Univ of Missouri Kan City | 1,383 | 1,330 | 1,776 | 1,062 | 820 | 547 | 223 | 157 |
| 168 Oregon Hlth Sciences Univ | 1,325 | 706 | 1,094 | 243 | 458 | 104 | 422 | 379 |
| 169 SUNY at Binghamton | 1,308 | 1,126 | 909 | 836 | 705 | 524 | 618 | 556 |
| 170 North Dakota State Univ | 1,289 | 1,257 | 1,246 | 1,995 | 1,892 | 1,234 | 1,105 | 377 |
| Total, 1st 170 insts. | 1,072,556 | 937,029 | 816,979 | 740,972 | 658,464 | 524,428 | 445,776 | 364,304 |
| 171 The Medical Col of Penna | 1,263 | 0 | 0 | 0 | 321 | 309 | 630 | 1,006 |
| 172 University of Mississippi | 1,250 | 1,085 | 998 | 766 | 441 | 890 | 763 | 546 |
| 173 University of Detroit | 1,244 | 1,125 | 754 | 616 | 573 | 501 | 461 | 369 |
| 174 Marquette University | 1,239 | 921 | 668 | 435 | 314 | 352 | 250 | 256 |
| 175 Univ of Nevada - Reno | 1,227 | 1,019 | 695 | 687 | 425 | 313 | 134 | 395 |
| 176 Florida Inst of Tech | 1,205 | 567 | 518 | 216 | 415 | 193 | 128 | 35 |
| 177 University of Chicago | 1,202 | 1,520 | 1,814 | 1,812 | 1,203 | 1,044 | 962 | 941 |
| 178 St Louis University | 1,148 | 913 | 651 | 203 | 210 | 215 | 221 | 0 |
| 179 U of Arkansas Med Sci Cam | 1,117 | 1,679 | 753 | 476 | 483 | 279 | 202 | 232 |
| 180 Western Michigan Univ | 1,102 | 852 | 603 | 710 | 519 | 428 | 24 | 606 |
| Total, 1st 180 insts. | 1,084,553 | 946,710 | 824,433 | 746,893 | 663,368 | 528,952 | 449,551 | 368,144 |
| 181 SUNY Hlth Sci Ctr - Brkln | 1,084 | 1,425 | 1,054 | 897 | 653 | 547 | 304 | 284 |
| 182 Univ of Rhode Island | 1,071 | 2,014 | 3,544 | 1,130 | 752 | 375 | 0 | 0 |
| 183 George Washington Univ | 988 | 1,100 | 990 | 359 | 399 | 440 | 316 | 198 |
| 184 Cal Poly St U San Luis Ob | 986 | 1,097 | 711 | 608 | 540 | 471 | 405 | 336 |
| 185 Stevens Institute of Tech | 960 | 600 | 1,966 | 1,852 | 1,786 | 1,322 | 1,256 | 0 |
| 186 Tenn Technological Univ | 945 | 836 | 274 | 371 | 309 | 248 | 224 | 199 |
| 187 Univ of Cal Riverside 1/ | 903 | 1,094 | 1,692 | 1,692 | 2,041 | 0 | 0 | 0 |
| 188 Univ of Cal Santa Cruz 1/ | 825 | 583 | 386 | 460 | 218 | 0 | 0 | 0 |
| 189 Phila Col of Pharm & Sci | 772 | 483 | 354 | 291 | 342 | 244 | 233 | 151 |
| 190 George Mason University | 742 | 348 | 215 | 164 | 113 | 671 | 19 | 131 |
| Total, 1st 190 insts. | 1,093,829 | 956,290 | 835,619 | 754,980 | 670,521 | 532,666 | 452,308 | 369,325 |
| 191 Univ of Texas at Dallas | 740 | 756 | 785 | 658 | 421 | 59 | 105 | 188 |
| 192 SUNY at Albany | 727 | 657 | 399 | 271 | 300 | 144 | 50 | 63 |
| 193 Oakland University | 724 | 751 | 472 | 630 | 394 | 332 | 273 | 36 |
| 194 Albany Med Ctr Grad Sch | 719 | 1,222 | 1,448 | 1,661 | 1,130 | 1,099 | 1,071 | 1,043 |
| 195 Florida State University | 669 | 832 | 571 | 280 | 217 | 191 | 72 | 98 |
| 196 Wichita State University | 657 | 588 | 683 | 659 | 492 | 345 | 210 | 173 |
| 197 Miami University (Ohio) | 643 | 595 | 1,131 | 1,151 | 1,651 | 1,671 | 167 | 135 |
| 198 Florida Atlantic Univ | 639 | 626 | 1,023 | 999 | 742 | 389 | 354 | 0 |
| 199 Catholic Univ of America | 615 | 477 | 313 | 106 | 187 | 323 | 103 | 0 |
| 200 South Carolina St College | 600 | 300 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total, 1st 200 insts. | 1,100,562 | 963,094 | 841,426 | 760,359 | 674,569 | 535,715 | 454,713 | 371,061 |
| Total, all other sampled insts. | 21,290 | 21,362 | 29,418 | 28,879 | 24,588 | 23,509 | 20,037 | 17,044 |
| Estimated total non-sampled insts. | 13,377 | 13,533 | 0 | 0 | 0 | 0 | 0 | 0 |

1/ Data for the University of California in fiscal year 1986 and subsequent years include industry-supported R&D expenditures for the first time. Industry data are not available for fiscal years prior to 1987.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-39. R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

[Dollars in thousands]

Page 1 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|------------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 16,324,610 | 2,681,751 | 1,781,108 | 1,047,299 | 723,920 | 8,763,473 | 259,555 | 702,175 | 365,330 |
| 1 Johns Hopkins Univ | 668,915 | 204,793 | 93,344 | 41,412 | 97,042 | 208,607 | 1,368 | 10,767 | 11,582 |
| 2 Mass Inst of Technology | 311,767 | 127,004 | 98,119 | 12,247 | 14,697 | 37,711 | 7,856 | 4,645 | 9,488 |
| 3 University of Michigan | 310,578 | 53,905 | 15,329 | 17,154 | 10,142 | 162,379 | 5,388 | 39,203 | 7,078 |
| 4 Univ of Wis-Madison | 309,841 | 39,781 | 29,538 | 22,033 | 7,871 | 178,337 | 8,553 | 22,661 | 1,067 |
| 5 Stanford University | 305,700 | 83,694 | 53,844 | 5,645 | 16,642 | 138,546 | 4,397 | 2,932 | 0 |
| 6 Cornell University | 300,144 | 39,663 | 44,887 | 6,215 | 27,146 | 166,595 | 2,909 | 12,049 | 680 |
| 7 University of Minnesota | 292,046 | 27,943 | 16,577 | 8,802 | 16,440 | 204,590 | 6,042 | 11,245 | 407 |
| 8 Texas A & M University | 272,800 | 62,791 | 17,538 | 64,027 | 5,475 | 106,885 | 686 | 9,329 | 6,069 |
| 9 Pennsylvania State Univ | 256,926 | 118,070 | 16,625 | 14,095 | 3,553 | 83,743 | 4,565 | 8,943 | 7,332 |
| 10 Univ of Cal Los Angeles | 246,795 | 24,213 | 23,136 | 12,215 | 7,394 | 157,626 | 6,681 | 15,530 | 0 |
| Total, 1st 10 insts. | 3,275,512 | 781,857 | 408,937 | 203,845 | 206,402 | 1,445,019 | 48,445 | 137,304 | 43,703 |
| 11 University of Washington | 245,313 | 16,985 | 15,333 | 21,389 | 9,183 | 152,755 | 5,097 | 4,921 | 19,650 |
| 12 Univ of Cal San Francisco | 238,278 | 0 | 0 | 0 | 0 | 238,278 | 0 | 0 | 0 |
| 13 Univ of Cal San Diego | 237,032 | 7,454 | 30,989 | 73,805 | 8,743 | 111,514 | 2,617 | 2,110 | 0 |
| 14 Univ of Cal Berkeley | 231,061 | 52,124 | 50,711 | 5,389 | 5,314 | 87,951 | 6,414 | 19,550 | 3,608 |
| 15 Univ of Texas at Austin | 228,203 | 58,968 | 40,985 | 25,285 | 10,543 | 19,785 | 2,259 | 15,335 | 5,043 |
| 16 Univ of Ill Urbana | 227,742 | 66,497 | 23,258 | 20,749 | 18,006 | 48,002 | 5,532 | 10,244 | 35,454 |
| 17 Harvard University | 220,812 | 9,998 | 28,340 | 6,303 | 3,909 | 136,522 | 2,064 | 39,668 | 3,008 |
| 18 Univ of Cal Davis | 198,075 | 7,794 | 7,851 | 1,100 | 1,130 | 177,754 | 522 | 1,924 | 0 |
| 19 University of Arizona | 195,633 | 14,220 | 61,723 | 22,397 | 4,258 | 82,067 | 626 | 7,944 | 2,398 |
| 20 Univ of Pennsylvania | 189,390 | 10,832 | 15,494 | 108 | 8,983 | 132,599 | 1,546 | 14,956 | 4,872 |
| Total, 1st 20 insts. | 5,487,051 | 1,017,729 | 683,621 | 380,370 | 276,471 | 2,632,046 | 75,122 | 253,956 | 167,736 |
| 21 Columbia Univ Main Div | 182,769 | 17,647 | 16,361 | 24,529 | 4,462 | 113,392 | 1,261 | 5,117 | 0 |
| 22 Yale University | 180,706 | 6,732 | 15,391 | 2,329 | 3,320 | 143,093 | 3,181 | 2,660 | 0 |
| 23 Ohio State University | 178,569 | 43,810 | 12,802 | 3,685 | 2,828 | 93,307 | 395 | 12,383 | 9,359 |
| 24 Univ of Southern Cal | 169,102 | 27,713 | 7,463 | 7,207 | 31,932 | 83,856 | 7,527 | 3,399 | 5 |
| 25 Georgia Institute of Tech | 168,193 | 116,867 | 15,314 | 10,257 | 16,660 | 2,153 | 1,696 | 5,246 | 0 |
| 26 Univ of MD College Park | 166,022 | 43,964 | 56,256 | 6,437 | 18,176 | 19,554 | 4,994 | 16,641 | 0 |
| 27 University of Georgia | 156,742 | 3,810 | 6,706 | 6,737 | 5,553 | 111,742 | 3,656 | 18,538 | 0 |
| 28 Baylor Col of Medicine | 155,122 | 0 | 0 | 0 | 0 | 155,122 | 0 | 0 | 0 |
| 29 Univ of Colorado | 154,723 | 20,660 | 21,438 | 23,643 | 4,198 | 75,398 | 5,178 | 4,208 | 0 |
| 30 Washington University | 151,249 | 2,695 | 6,554 | 1,999 | 5,308 | 133,337 | 1,036 | 320 | 0 |
| Total, 1st 30 insts. | 7,150,248 | 1,301,627 | 841,906 | 467,193 | 372,908 | 3,563,000 | 104,046 | 322,468 | 177,100 |
| 31 Duke University | 140,708 | 6,492 | 9,085 | 2,520 | 2,696 | 111,309 | 1,558 | 7,048 | 0 |
| 32 University of Florida | 139,678 | 30,585 | 11,804 | 4,526 | 4,481 | 81,616 | 2,114 | 3,300 | 1,252 |
| 33 Rutgers the St Univ of NJ | 137,985 | 21,694 | 17,273 | 5,949 | 12,789 | 59,183 | 6,198 | 13,005 | 1,894 |
| 34 Louisiana State Univ | 135,849 | 20,890 | 9,164 | 14,845 | 1,954 | 83,104 | 795 | 4,036 | 1,061 |
| 35 Northwestern University | 131,979 | 17,407 | 11,770 | 959 | 1,844 | 74,268 | 981 | 1,809 | 22,941 |
| 36 N C State Univ at Raleigh | 131,133 | 40,181 | 5,611 | 5,301 | 4,773 | 71,258 | 219 | 3,790 | 0 |
| 37 Purdue University | 130,379 | 32,466 | 14,467 | 1,882 | 5,386 | 66,601 | 1,521 | 6,607 | 1,449 |
| 38 University of Rochester | 129,011 | 22,858 | 13,329 | 294 | 2,079 | 85,078 | 4,731 | 500 | 142 |
| 39 Michigan State University | 126,987 | 14,650 | 20,898 | 1,758 | 4,478 | 73,035 | 2,930 | 6,622 | 6,616 |
| 40 Univ. Of Tennessee System | 126,790 | 33,093 | 9,780 | 1,607 | 4,860 | 68,976 | 1,310 | 5,698 | 1,466 |
| Total, 1st 40 insts. | 8,480,747 | 1,541,943 | 965,087 | 506,834 | 414,248 | 4,337,428 | 126,403 | 374,883 | 213,921 |
| 41 Univ of NC at Chapel Hill | 123,113 | 0 | 6,481 | 5,192 | 7,964 | 92,270 | 1,013 | 10,193 | 0 |
| 42 VA Polytech Inst & St U | 121,423 | 44,473 | 9,710 | 3,434 | 3,438 | 52,477 | 1,209 | 6,682 | 0 |
| 43 University of Chicago | 117,955 | 0 | 26,088 | 4,089 | 2,922 | 79,769 | 1,008 | 4,079 | 0 |
| 44 University of Pittsburgh | 117,716 | 5,944 | 12,904 | 259 | 1,673 | 90,285 | 1,583 | 4,246 | 822 |
| 45 Iowa St U of Sci & Tech | 115,945 | 26,974 | 5,396 | 548 | 8,314 | 65,403 | 341 | 6,289 | 2,480 |
| 46 University of Iowa | 115,778 | 9,707 | 17,498 | 540 | 1,745 | 82,386 | 1,009 | 2,893 | 0 |
| 47 University of Connecticut | 113,349 | 20,655 | 3,937 | 6,796 | 2,420 | 72,266 | 2,912 | 3,025 | 1,338 |
| 48 Univ Alabama Birmingham | 110,603 | 4,317 | 553 | 4 | 902 | 104,185 | 574 | 68 | 0 |
| 49 SUNY at Buffalo | 109,190 | 23,166 | 6,952 | 820 | 3,492 | 66,568 | 2,794 | 4,421 | 977 |
| 50 New York University | 108,511 | 0 | 3,110 | 139 | 10,968 | 84,854 | 3,605 | 4,532 | 1,303 |
| Total, 1st 50 insts. | 9,634,330 | 1,677,179 | 1,057,716 | 528,655 | 458,086 | 5,127,891 | 142,651 | 421,311 | 220,841 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-39. R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

[Dollars in thousands]

Page 2 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|----------------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 51 California Inst of Tech | 105,730 | 17,363 | 42,034 | 15,957 | 4,196 | 24,857 | 0 | 471 | 852 |
| 52 Univ of Massachusetts | 101,812 | 9,239 | 12,984 | 5,979 | 9,775 | 54,677 | 3,406 | 4,680 | 1,072 |
| 53 Carnegie-Mellon Univ | 100,201 | 24,000 | 7,203 | 1,886 | 46,574 | 11,400 | 4,458 | 3,412 | 1,268 |
| 54 University of Virginia | 96,815 | 18,116 | 11,212 | 5,322 | 3,902 | 51,023 | 2,406 | 4,535 | 299 |
| 55 University of Miami | 94,344 | 1,911 | 1,406 | 18,626 | 436 | 68,395 | 1,419 | 1,808 | 343 |
| 56 Case Western Reserve Univ | 93,384 | 19,049E | 10,022E | 244E | 207E | 60,411E | 263E | 3,188E | 0E |
| 57 Princeton University | 91,514 | 23,048 | 22,819 | 6,270 | 7,061 | 17,597 | 5,015 | 9,704 | 0 |
| 58 UT MD Anderson Cancer Ctr | 91,283 | 0 | 4,106 | 0 | 2,358 | 84,819 | 0 | 0 | 0 |
| 59 Oregon State University | 90,688 | 8,459 | 3,635 | 18,623 | 1,705 | 51,442 | 88 | 2,300 | 4,436 |
| 60 Indiana University | 89,191 | 131 | 22,532 | 555 | 2,702 | 55,502 | 3,089 | 2,943 | 1,737 |
| Total, 1st 60 insts. | 10,589,292 | 1,798,495 | 1,195,669 | 602,117 | 537,002 | 5,608,014 | 162,795 | 454,352 | 230,848 |
| 61 University of Utah | 89,018 | 16,502 | 8,115 | 3,521 | 4,057 | 55,460 | 614 | 749 | 0 |
| 62 Utah State University | 86,450 | 40,694 | 4,431 | 10,843 | 296 | 21,760 | 497 | 1,275 | 6,654 |
| 63 UT SW Medical Ctr-Dallas | 85,919 | 0 | 0 | 0 | 0 | 85,919 | 0 | 0 | 0 |
| 64 Univ of Ill Chicago | 85,268 | 5,486 | 8,204 | 1,121 | 1,904 | 59,462 | 275 | 3,309 | 5,507 |
| 65 Univ of Missouri Columbia | 84,311 | 9,738 | 1,997 | 935 | 271 | 64,257 | 927 | 5,694 | 492 |
| 66 Yeshiva University | 83,968 | 0 | 0 | 0 | 0 | 83,968 | 0 | 0 | 0 |
| 67 Univ of MD Balt Prof Sch | 83,689 | 0 | 0 | 0 | 0 | 83,689 | 0 | 0 | 0 |
| 68 Emory University | 82,774 | 0 | 4,631 | 6 | 272 | 74,880 | 520 | 2,465 | 0 |
| 69 SUNY at Stony Brook | 82,236 | 2,479 | 20,878 | 9,874 | 3,667 | 40,081 | 1,050 | 3,197 | 1,010 |
| 70 Univ of Cal Irvine | 78,074 | 4,568 | 12,300 | 193 | 4,076 | 53,261 | 0 | 3,666 | 10 |
| Total, 1st 70 insts. | 11,430,999 | 1,877,962 | 1,256,225 | 628,610 | 551,545 | 6,230,751 | 166,678 | 474,707 | 244,521 |
| 71 Univ of Nebraska-Lincoln | 77,598 | 9,709 | 4,642 | 2,996 | 1,316 | 55,349 | 418 | 2,774 | 394 |
| 72 Univ of Hawaii-Manoa | 76,525 | 1,505 | 17,953 | 24,188 | 899 | 22,662 | 279 | 3,157 | 5,882 |
| 73 Univ of South Florida | 76,404 | 24,961 | 2,720 | 5,063 | 291 | 40,589 | 1,358 | 1,422 | 0 |
| 74 Rockefeller University | 75,245 | 0 | 11,661 | 0 | 866 | 62,718 | 0 | 0 | 0 |
| 75 Vanderbilt University | 75,062 | 7,287 | 6,681 | 119 | 424 | 57,246 | 1,744 | 1,561 | 0 |
| 76 University of Kentucky | 74,959 | 12,172 | 1,827 | 131 | 588 | 51,789 | 218 | 1,082 | 7,152 |
| 77 University of Cincinnati | 74,461 | 14,150 | 4,669 | 179 | 476 | 51,495 | 324 | 351 | 2,817 |
| 78 Colorado State University | 73,967 | 16,026 | 4,658 | 8,207 | 1,023 | 36,345 | 1,607 | 6,092 | 9 |
| 79 Boston University | 73,655 | 3,723 | 8,956 | 115 | 1,063 | 54,067 | 482 | 1,636 | 3,613 |
| 80 Woods Hole Oceanographic Inst | 71,777 | 11,343 | 0 | 60,404 | 0 | 0 | 0 | 0 | 0 |
| Total, 1st 80 insts. | 12,180,622 | 1,978,838 | 1,319,992 | 730,012 | 558,491 | 6,663,011 | 173,108 | 492,782 | 264,388 |
| 81 New Mexico State Univ | 71,288 | 35,725I | 2,690I | 2,108I | 9,964I | 19,797I | 302I | 372I | 330I |
| 82 Washington State Univ | 66,856 | 6,025 | 2,425 | 723 | 608 | 46,456 | 304 | 8,237 | 2,078 |
| 83 Auburn University | 66,795 | 18,819 | 3,778 | 201 | 1,110 | 40,638 | 46 | 549 | 1,654 |
| 84 Clemson University | 66,664 | 16,414 | 3,567 | 161 | 6,692 | 34,611 | 152 | 4,888 | 179 |
| 85 Oklahoma State University | 65,685 | 15,639 | 4,837 | 1,469 | 1,058 | 32,289 | 318 | 6,866 | 3,209 |
| 86 Univ of Alaska Fairbanks | 65,571 | 6,280 | 13,761 | 24,879 | 212 | 17,454 | 0 | 2,985 | 0 |
| 87 Univ of Med & Dent of N J | 64,229 | 0 | 0 | 0 | 0 | 64,229 | 0 | 0 | 0 |
| 88 CUNY Mt Sinai Sch of Med | 63,752 | 0 | 0 | 0 | 0 | 63,752 | 0 | 0 | 0 |
| 89 Florida State University | 62,933 | 965 | 13,839 | 7,996 | 3,027 | 7,866 | 3,166 | 6,785 | 19,289 |
| 90 Virginia Commonwealth Univ | 62,730 | 48 | 1,876 | 0 | 119 | 58,528 | 626 | 1,533 | 0 |
| Total, 1st 90 insts. | 12,837,125 | 2,078,753 | 1,366,765 | 767,549 | 581,281 | 7,048,631 | 178,022 | 524,997 | 291,127 |
| 91 Wayne State University | 62,455 | 5,951 | 7,900 | 0 | 398 | 43,871 | 716 | 1,597 | 2,022 |
| 92 University of Kansas | 61,144 | 4,318 | 6,635 | 6,196 | 437 | 32,597 | 1,426 | 329 | 9,206 |
| 93 Univ of Cal Santa Barbara | 59,750 | 22,214 | 15,216 | 9,611 | 2,496 | 2,608 | 2,789 | 4,816 | 0 |
| 94 Arizona State University | 58,652 | 18,618 | 14,490 | 7,529 | 2,164 | 5,655 | 2,138 | 6,797 | 1,261 |
| 95 University of Oklahoma | 58,645 | 8,735 | 5,030 | 9,056 | 2,444 | 27,424 | 359 | 4,995 | 602 |
| 96 Mississippi State Univ | 58,492 | 12,433 | 1,644 | 1,318 | 112 | 36,357 | 0 | 3,350 | 3,278 |
| 97 University of New Mexico | 57,728 | 20,402 | 3,079 | 1,628 | 562 | 27,115 | 552 | 2,001 | 2,389 |
| 98 Tulane University | 56,407 | 2,587 | 1,043 | 206 | 704 | 46,411 | 347 | 3,840 | 1,269 |
| 99 Univ of Cal Riverside | 54,892 | 0 | 4,044 | 1,519 | 654 | 47,431 | 191 | 1,053 | 0 |
| 100 Georgetown University | 50,867 | 0 | 3,998 | 388 | 1,251 | 41,120 | 70 | 3,389 | 651 |
| Total, 1st 100 insts. | 13,416,157 | 2,174,011 | 1,429,844 | 805,000 | 592,503 | 7,359,220 | 186,610 | 557,164 | 311,805 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table 8-39. R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 3 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|-------------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 101 Kans St U - Ag & App Sci | 50,311 | 6,186 | 3,287 | 251 | 673 | 37,289 | 366 | 1,652 | 607 |
| 102 Temple University | 49,449 | 234 | 2,721 | 8 | 404 | 37,121 | 1,242 | 7,688 | 31 |
| 103 Univ of South Carolina | 47,477 | 6,974 | 5,710 | 9,617 | 1,994 | 15,119 | 2,261 | 5,343 | 459 |
| 104 Rensselaer Polytech Inst | 47,363 | 33,993 | 6,263 | 1,189 | 3,788 | 1,326 | 134 | 293 | 377 |
| 105 Tufts University | 47,009 | 2,117 | 1,383 | 4,148 | 174 | 37,300 | 854 | 1,033 | 0 |
| 106 Brown University | 46,763 | 7,156 | 6,162 | 4,669 | 9,289 | 17,654 | 1,550 | 283 | 0 |
| 107 U Tex Hlth Sci Ctr Houstn | 45,707 | 0 | 0 | 519 | 0 | 44,345 | 0 | 843 | 0 |
| 108 U Tex Hlth Sci Ctr S Anto | 45,663 | 0 | 0 | 0 | 0 | 45,663 | 0 | 0 | 0 |
| 109 West Virginia University | 45,542 | 5,381 | 1,437 | 6,314 | 10,452 | 20,625 | 143 | 1,170 | 20 |
| 110 U of VT & State Agr Coll | 45,162 | 996 | 1,025 | 426 | 252 | 41,009 | 1,246 | 20 | 188 |
| Total, 1st 110 insts. | 13,886,603 | 2,237,048 | 1,457,832 | 832,141 | 619,529 | 7,656,671 | 194,406 | 575,489 | 313,487 |
| 111 Dartmouth College | 43,737 | 5,401E | 2,497E | 926E | 459E | 33,439E | 201E | 527E | 287E |
| 112 Oregon Hlth Sciences Univ | 41,420 | 01 | 01 | 01 | 01 | 40,0701 | 1,3501 | 01 | 01 |
| 113 U Tex Med Brnch Galveston | 40,610 | 0 | 0 | 0 | 0 | 40,610 | 0 | 0 | 0 |
| 114 University of Delaware | 40,119 | 12,251 | 6,869 | 6,721 | 1,888 | 9,093 | 592 | 2,705 | 0 |
| 115 Wake Forest University | 39,654 | 0 | 603 | 0 | 150 | 38,636 | 41 | 6 | 218 |
| 116 U of Houston | 37,978 | 8,027 | 19,290 | 1,934 | 1,109 | 4,847 | 1,584 | 1,119 | 68 |
| 117 Univ of Ark Fayetteville | 36,963 | 7,059 | 3,696 | 130 | 1,235 | 22,032 | 459 | 2,062 | 490 |
| 118 University of Dayton | 36,177 | 30,722 | 1,343 | 70 | 1,127 | 344 | 2,453 | 118 | 0 |
| 119 Univ Serv Univ of Hlth Sc | 36,080 | 0 | 0 | 0 | 0 | 36,080 | 0 | 0 | 0 |
| 120 Univ of Rhode Island | 35,846 | 3,907 | 568 | 18,944 | 114 | 9,817 | 943 | 1,553 | 0 |
| Total, 1st 120 insts. | 14,275,187 | 2,304,415 | 1,492,498 | 860,866 | 625,611 | 7,891,639 | 202,029 | 583,579 | 314,550 |
| 121 SUNY Hlth Sci Ctr - Syrcs | 35,193 | 0 | 0 | 0 | 0 | 35,193 | 0 | 0 | 0 |
| 122 University of Idaho | 34,936 | 6,719 | 1,848 | 2,006 | 0 | 22,172 | 24 | 1,848 | 319 |
| 123 Medical College of Wis | 34,622 | 0 | 0 | 0 | 0 | 34,622 | 0 | 0 | 0 |
| 124 Texas Tech University | 34,142 | 8,801 | 3,147 | 774 | 542 | 15,486 | 134 | 4,620 | 638 |
| 125 Syracuse University | 33,811 | 7,560 | 5,968 | 1,347 | 10,647 | 4,619 | 486 | 3,183 | 1 |
| 126 George Washington Univ | 32,372 | 5,898 | 955 | 35 | 5,623 | 19,240 | 165 | 402 | 54 |
| 127 Thomas Jefferson Univ | 30,969 | 0 | 0 | 0 | 0 | 30,969 | 0 | 0 | 0 |
| 128 Brandeis University | 30,881 | 0 | 3,339 | 0 | 954 | 14,303 | 1,224 | 11,061 | 0 |
| 129 Univ of Central Florida | 30,618 | 4,220 | 7,693 | 7,084 | 706 | 398 | 205 | 453 | 9,859 |
| 130 Univ of P R-Mayaguez | 30,555 | 1,616 | 171 | 1,424 | 30 | 27,165 | 22 | 0 | 127 |
| Total, 1st 130 insts. | 14,603,286 | 2,339,229 | 1,515,619 | 873,536 | 644,113 | 8,095,806 | 204,289 | 605,146 | 325,548 |
| 131 Univ Alabama Huntsville | 29,565 | 11,918 | 11,024 | 1,406 | 4,314 | 482 | 3 | 12 | 406 |
| 132 Montana State University | 27,648 | 2,871 | 4,410 | 292 | 215 | 18,593 | 7 | 1,260 | 0 |
| 133 Lehigh University | 27,255 | 19,596 | 5,238 | 359 | 568 | 938 | 282 | 274 | 0 |
| 134 Univ of Cal Santa Cruz | 26,347 | 314 | 12,887 | 4,694 | 756 | 6,641 | 464 | 591 | 0 |
| 135 University of Oregon | 26,346 | 790 | 12,114 | 2,655 | 778 | 7,016 | 1,552 | 1,204 | 237 |
| 136 Rice University | 26,267 | 4,703 | 8,470 | 2,849 | 6,718 | 2,917 | 435 | 175 | 0 |
| 137 Univ of New Hampshire | 25,994 | 2,334 | 3,668 | 9,309 | 260 | 5,538 | 105 | 1,123 | 1,657 |
| 138 Southern Ill U-Carbondale | 25,873 | 4,193 | 1,153 | 895 | 2,335 | 12,853 | 503 | 1,411 | 2,530 |
| 139 Univ of Maine Orono | 23,605 | 2,925 | 891 | 4,350 | 43 | 13,779 | 294 | 1,323 | 0 |
| 140 Med Univ of So Carolina | 23,128 | 0 | 0 | 0 | 0 | 23,128 | 0 | 0 | 0 |
| Total, 1st 140 insts. | 14,865,314 | 2,388,873 | 1,577,474 | 900,345 | 660,100 | 8,187,691 | 207,934 | 612,519 | 330,378 |
| 141 N Mex Inst Mining & Tech | 22,911 | 16,090 | 1,877 | 4,576 | 243 | 125 | 0 | 0 | 0 |
| 142 SUNY Hlth Sci Ctr - Brkln | 22,873 | 0 | 0 | 0 | 0 | 22,873 | 0 | 0 | 0 |
| 143 University of Wyoming | 22,831 | 1,910 | 2,132 | 3,046 | 737 | 12,216 | 282 | 809 | 1,699 |
| 144 San Diego State Univ | 22,524 | 4,142 | 1,568 | 445 | 1,676 | 9,086 | 1,349 | 964 | 3,294 |
| 145 University of Mississippi | 22,071 | 2,486 | 4,091 | 0 | 5 | 14,649 | 385 | 455 | 0 |
| 146 SUNY at Albany | 22,034 | 0 | 2,303 | 8,881 | 914 | 2,928 | 2,797 | 4,211 | 0 |
| 147 The University of Alabama | 21,488 | 6,709 | 3,910 | 2,244 | 1,974 | 2,400 | 831 | 2,762 | 658 |
| 148 Univ of Nevada - Reno | 21,449 | 2,866 | 1,054 | 4,424 | 13 | 11,364 | 43 | 1,189 | 496 |
| 149 Rush University | 21,284 | 0 | 0 | 0 | 0 | 20,363 | 921 | 0 | 0 |
| 150 Drexel University | 20,079 | 12,835 | 3,061 | 828 | 997 | 948 | 210 | 1,200 | 0 |
| Total, 1st 150 insts. | 15,084,858 | 2,435,911 | 1,597,470 | 924,789 | 666,659 | 8,284,643 | 214,752 | 624,109 | 336,525 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

Table B-39. R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 4 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|---------------------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 151 University of Notre Dame | 19,373 | 4,630 | 10,735 | 47 | 443 | 3,028 | 150 | 70 | 270 |
| 152 SUNY Col of Env Sci & For | 18,671 | 6,240 | 1,538 | 2,177 | 359 | 7,940 | 0 | 409 | 8 |
| 153 The Medical Col of Penna | 18,643 | 0 | 0 | 0 | 0 | 18,643 | 0 | 0 | 0 |
| 154 U of Neb Med Ctr at Omaha | 17,844 | 0 | 0 | 0 | 0 | 17,844 | 0 | 0 | 0 |
| 155 University of N Dakota | 17,498 | 8,271 | 53 | 2,882 | 0 | 4,655 | 15 | 861 | 761 |
| 156 US Naval Postgrad School | 17,391 | 5,575 | 2,477 | 3,558 | 1,644 | 0 | 0 | 2,748 | 1,389 |
| 157 Howard University | 17,382 | 2,117 | 3,702 | 148 | 391 | 10,259 | 741 | 1,043 | 0 |
| 158 St Louis University | 17,157 | 0 | 180 | 715 | 47 | 16,083 | 0 | 4 | 128 |
| 159 Desert Research Institute | 16,852 | 0 | 0 | 14,118 | 0 | 1,054 | 0 | 1,680 | 0 |
| 160 Michigan Tech University | 16,037 | 10,366 | 1,296 | 324 | 77 | 2,990 | 0 | 975 | 9 |
| Total, 1st 160 insts. | 15,261,706 | 2,473,110 | 1,617,451 | 948,758 | 669,268 | 8,367,139 | 214,991 | 631,899 | 339,090 |
| 161 University of Louisville | 15,921 | 1,118 | 1,129 | 243 | 88 | 12,027 | 2 | 1,314 | 0 |
| 162 Florida A & M University | 15,847 | 1,485 | 2,080 | 0E | 293 | 7,539E | 0 | 4,450 | 0 |
| 163 U of MD Center For EES | 15,652 | 0 | 0 | 15,652 | 0 | 0 | 0 | 0 | 0 |
| 164 Univ of Wis-Milwaukee | 15,639 | 2,713 | 3,175 | 2,740 | 237 | 2,913 | 461 | 2,472 | 928 |
| 165 N J Inst of Technology | 15,225 | 4,510 | 271 | 4,922 | 2,086 | 0 | 0 | 241 | 3,195 |
| 166 Northeastern University | 14,347 | 5,227 | 3,291 | 0 | 1,177 | 3,372 | 618 | 400 | 262 |
| 167 Univ of Missouri Rolla | 14,285 | 9,207 | 2,792 | 497 | 490 | 296 | 14 | 16 | 973 |
| 168 Southern Methodist Univ | 13,600E | 1,509 | 1,138 | 7,011 | 1,723 | 743 | 170 | 836 | 470 |
| 169 Hahnemann University | 13,595 | 0 | 0 | 0 | 0 | 12,134 | 1,461 | 0 | 0 |
| 170 Wright State University | 13,451 | 2,611 | 2,328 | 171 | 1,153 | 6,803 | 284 | 101 | 0 |
| Total, 1st 170 insts. | 15,409,268 | 2,501,490 | 1,633,655 | 979,994 | 676,515 | 8,412,966 | 218,001 | 641,729 | 344,918 |
| 171 New York Medical College | 13,244 | 0 | 0 | 0 | 0 | 13,244 | 0 | 0 | 0 |
| 172 Ohio University | 12,982 | 5,766 | 1,661 | 141 | 28 | 4,921 | 365 | 100 | 0 |
| 173 CUNY City College | 12,973 | 2,762 | 5,423 | 259 | 280 | 3,390 | 257 | 162 | 440 |
| 174 North Dakota State Univ | 12,468 | 1,310 | 1,448 | 39 | 317 | 3,865 | 280 | 895 | 314 |
| 175 Loyola Univ - Chicago | 12,260 | 0 | 286 | 0 | 102 | 10,236 | 944 | 689 | 3 |
| 176 Univ of Texas at Dallas | 12,075 | 1,172 | 5,314 | 1,467 | 848 | 2,529 | 218 | 389 | 138 |
| 177 Memphis State University | 12,073 | 1,100 | 312 | 2,946 | 355 | 2,465 | 3,139 | 1,756 | 0 |
| 178 Medical Col of Georgia | 12,052 | 0 | 0 | 0 | 0 | 12,052 | 0 | 0 | 0 |
| 179 U of Arkansas Med Sci Cam | 11,898 | 0 | 0 | 0 | 0 | 11,898 | 0 | 0 | 0 |
| 180 Brigham Young University | 11,608 | 4,718 | 2,785 | 90 | 95 | 1,788 | 1 | 392 | 1,739 |
| Total, 1st 180 insts. | 15,532,901 | 2,518,318 | 1,650,884 | 984,936 | 678,540 | 8,483,354 | 223,205 | 646,112 | 347,552 |
| 181 University of Lowell | 11,291 | 3,119 | 2,737 | 1,419 | 900 | 1,793 | 0 | 14 | 1,309 |
| 182 Univ of South Alabama | 11,105 | 47 | 92 | 354 | 34 | 10,229 | 206 | 94 | 49 |
| 183 Colorado School of Mines | 10,943 | 6,097 | 2,283 | 601 | 724 | 0 | 0 | 192 | 1,046 |
| 184 Polytechnic University | 10,919 | 7,864 | 2,614 | 0 | 49 | 0 | 0 | 39 | 353 |
| 185 SUNY at Binghamton | 10,680 | 733 | 1,820 | 619 | 548 | 1,918 | 2,186 | 2,856 | 0 |
| 186 Old Dominion U Res Fdn | 10,579 | 3,966 | 1,272 | 1,536 | 1,210 | 2,533 | 11 | 51 | 0 |
| 187 Eastern VA Medical School | 10,496 | 0 | 0 | 0 | 0 | 10,496 | 0 | 0 | 0 |
| 188 University of Akron | 10,372 | 4,435 | 4,748 | 8 | 347 | 169 | 196 | 469 | 0 |
| 189 University of Denver | 10,102 | 5,371 | 3,087 | 0 | 63 | 362 | 1,043 | 176 | 0 |
| 190 San Jose State University | 10,086 | 2,591 | 1,064 | 3,805 | 234 | 472 | 1,910 | 10 | 0 |
| Total, 1st 190 insts. | 15,639,474 | 2,552,541 | 1,670,601 | 993,278 | 682,649 | 8,511,326 | 228,757 | 650,013 | 350,309 |
| 191 Univ of North Texas | 9,741 | 496 | 2,042 | 1,425 | 866 | 2,213 | 117 | 1,366 | 1,216 |
| 192 Tenn Technological Univ | 9,631 | 7,832 | 540 | 55 | 60 | 942 | 5 | 47 | 150 |
| 193 College of William & Mary | 9,572 | 0 | 3,157 | 4,574 | 1,060 | 359 | 243 | 179 | 0 |
| 194 South Dakota State Univ | 9,511 | 794 | 176 | 352 | 0 | 7,699 | 0 | 490 | 0 |
| 195 Albany Med Ctr Grad Sch | 9,431 | 0 | 0 | 0 | 0 | 9,431 | 0 | 0 | 0 |
| 196 Oregon Grad Inst Sci/Tech | 9,262 | 1,641 | 3,784 | 2,165 | 1,672 | 0 | 0 | 0 | 0 |
| 197 Georgia State University | 8,942 | 0 | 2,323 | 347 | 1,004 | 1,933 | 1,626 | 1,292 | 417 |
| 198 Northern Illinois Univ | 8,930 | 422 | 1,943 | 545 | 674 | 2,292 | 285 | 2,769 | 0 |
| 199 Creighton University | 8,929 | 0 | 0 | 0 | 0 | 8,929 | 0 | 0 | 0 |
| 200 Cleveland State Univ | 8,699 | 3,950 | 716 | 13 | 25 | 63 | 39 | 3,893 | 0 |
| Total, 1st 200 insts. | 15,732,122 | 2,567,676 | 1,685,282 | 1,002,754 | 688,010 | 8,545,187 | 231,072 | 660,049 | 352,092 |
| Total, all other sampled insts. | 465,534 | 89,740 | 75,512 | 24,118 | 28,733 | 184,467 | 19,189 | 33,285 | 10,490 |
| Estimated total non-sampled insts. | 126,954 | 24,335 | 20,314 | 20,427 | 7,177 | 33,819 | 9,294 | 8,841 | 2,748 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-40. Federally financed R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 1 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|----------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 9,611,045 | 1,534,931 | 1,290,163 | 674,129 | 492,302 | 5,067,946 | 169,380 | 225,434 | 156,759 |
| 1 Johns Hopkins Univ | 599,851 | 200,964 | 91,640 | 37,661 | 96,858 | 163,223 | 1,162 | 5,274 | 3,069 |
| 2 Stanford University | 251,446 | 69,015 | 48,995 | 3,390 | 14,749 | 110,547 | 3,186 | 1,564 | 0 |
| 3 Mass Inst of Technology | 233,813 | 85,559 | 82,688 | 9,776 | 11,103 | 32,758 | 7,231 | 927 | 3,771 |
| 4 University of Washington | 203,353 | 11,359 | 12,548 | 20,274 | 8,549 | 125,284 | 4,664 | 2,919 | 17,756 |
| 5 Univ of Cal San Diego | 182,555 | 5,304 | 26,689 | 53,102 | 4,463 | 90,706 | 1,822 | 4,469 | 0 |
| 6 University of Michigan | 180,456 | 31,447 | 10,987 | 13,150 | 4,686 | 103,528 | 2,996 | 12,745 | 917 |
| 7 Univ of Wis-Madison | 178,862 | 24,474 | 22,378 | 15,865 | 5,647 | 93,184 | 6,876 | 10,311 | 127 |
| 8 Univ of Cal San Francisco | 175,257 | 0 | 0 | 0 | 0 | 175,257 | 0 | 0 | 0 |
| 9 Cornell University | 171,249 | 22,780 | 35,290 | 3,161 | 22,014 | 84,922 | 1,106 | 1,880 | 96 |
| 10 Univ of Cal Los Angeles | 164,442 | 16,873 | 21,485 | 8,654 | 5,941 | 104,102 | 4,782 | 2,605 | 0 |
| Total, 1st 10 insts. | 2,341,284 | 467,775 | 352,700 | 165,033 | 174,010 | 1,083,511 | 33,825 | 38,694 | 25,736 |
| 11 Columbia Univ Main Div | 156,270 | 11,777 | 15,497 | 23,965 | 3,565 | 97,783 | 1,149 | 2,534 | 0 |
| 12 Harvard University | 154,090 | 872 | 24,954 | 5,815 | 3,581 | 102,593 | 1,299 | 12,316 | 2,660 |
| 13 Yale University | 144,962 | 4,652 | 13,814 | 1,754 | 6,324 | 116,188 | 1,686 | 544 | 0 |
| 14 University of Minnesota | 143,810 | 10,781 | 12,563 | 2,440 | 12,553 | 97,634 | 3,962 | 3,877 | 0 |
| 15 Pennsylvania State Univ | 136,656 | 74,737 | 11,153 | 6,313 | 2,209 | 35,704 | 2,040 | 2,996 | 1,504 |
| 16 Univ of Pennsylvania | 133,747 | 6,685 | 14,495 | 41 | 7,006 | 96,957 | 1,357 | 3,287 | 3,919 |
| 17 Univ of Cal Berkeley | 131,717 | 29,399 | 42,182 | 3,954 | 3,899 | 41,857 | 3,685 | 6,224 | 517 |
| 18 Univ of Southern Cal | 123,714 | 18,427 | 7,039 | 5,196 | 28,533 | 57,813 | 5,227 | 1,479 | 0 |
| 19 Univ of Ill Urbana | 117,170 | 42,064 | 17,960 | 5,876 | 8,887 | 22,241 | 3,447 | 2,922 | 13,773 |
| 20 Univ. of Colorado | 116,394 | 13,704 | 18,187 | 20,252 | 3,414 | 54,616 | 3,549 | 2,672 | 0 |
| Total, 1st 20 insts. | 3,699,814 | 680,873 | 530,544 | 240,639 | 253,981 | 1,806,897 | 61,226 | 77,545 | 48,109 |
| 21 Univ of Texas at Austin | 109,593 | 26,031 | 22,478 | 6,644 | 2,497 | 10,153 | 1,678 | 3,269 | 36,843 |
| 22 Duke University | 106,053 | 4,899 | 7,344 | 1,817 | 2,288 | 84,358 | 1,471 | 3,876 | 0 |
| 23 Washington University | 105,759 | 1,262 | 5,231 | 1,414 | 3,472 | 93,531 | 704 | 145 | 0 |
| 24 University of Rochester | 105,644 | 19,203 | 12,328 | 1,202 | 1,904 | 69,149 | 2,319 | 424 | 115 |
| 25 University of Chicago | 96,327 | 0 | 23,941 | 3,728 | 6,511 | 64,416 | 704 | 1,027 | 0 |
| 26 Georgia Institute of Tech | 94,842 | 65,901 | 8,635 | 3,784 | 9,323 | 1,214 | 956 | 2,959 | 0 |
| 27 Texas A & M University | 93,001 | 13,388 | 8,021 | 45,980 | 2,943 | 20,262 | 310 | 1,639 | 458 |
| 28 University of Arizona | 92,920 | 6,989 | 32,929 | 6,644 | 3,110 | 39,626 | 469 | 1,687 | 1,466 |
| 29 Univ of NC at Chapel Hill | 92,468 | 0 | 5,400 | 2,614 | 5,420 | 72,374 | 939 | 5,721 | 0 |
| 30 University of Pittsburgh | 90,700 | 2,967 | 10,141 | 236 | 1,136 | 72,720 | 1,456 | 1,264 | 780 |
| Total, 1st 30 insts. | 4,687,121 | 821,513 | 666,992 | 315,702 | 288,655 | 2,334,700 | 72,232 | 99,556 | 87,771 |
| 31 California Inst of Tech | 90,577 | 15,186 | 37,172 | 15,155 | 3,378 | 18,668 | 0 | 424 | 594 |
| 32 New York University | 80,756 | 0 | 2,745 | 68 | 9,941 | 63,771 | 3,316 | 356 | 559 |
| 33 University of Iowa | 79,046 | 4,412 | 14,360 | 138 | 503 | 58,187 | 542 | 904 | 0 |
| 34 Ohio State University | 78,878 | 13,781 | 8,063 | 1,993 | 2,141 | 42,665 | 135 | 8,913 | 1,187 |
| 35 Univ of Cal Davis | 77,424 | 4,149 | 6,909 | 996 | 426 | 64,036 | 434 | 474 | 0 |
| 36 Baylor Col of Medicine | 75,793 | 0 | 0 | 0 | 0 | 75,793 | 0 | 0 | 0 |
| 37 Univ Alabama Birmingham | 74,486 | 1,023 | 325 | 0 | 198 | 72,524 | 378 | 38 | 0 |
| 38 Case Western Reserve Univ | 70,515 | 12,638 | 5,807 | 156 | 189 | 50,890 | 232 | 603 | 0 |
| 39 University of Miami | 68,144 | 1,061 | 1,332 | 14,981 | 383 | 47,724 | 1,269 | 1,394 | 0 |
| 40 SUNY at Buffalo | 66,876 | 7,900 | 4,129 | 565 | 2,235 | 49,673 | 912 | 1,139 | 323 |
| Total, 1st 40 insts. | 5,449,616 | 881,663 | 747,834 | 349,754 | 308,049 | 2,878,631 | 79,450 | 113,801 | 90,434 |
| 41 Vanderbilt University | 66,747 | 5,018 | 6,068 | 104 | 363 | 52,674 | 1,433 | 1,087 | 0 |
| 42 Univ of MD College Park | 66,410 | 16,336 | 30,835 | 4,593 | 4,591 | 6,287 | 1,194 | 2,574 | 0 |
| 43 Yeshiva University | 65,066 | 0 | 0 | 0 | 0 | 65,066 | 0 | 0 | 0 |
| 44 University of Florida | 64,614 | 14,766 | 7,068 | 1,940 | 2,423 | 36,453 | 995 | 663 | 306 |
| 45 Carnegie-Mellon Univ | 64,550 | 13,040 | 5,944 | 31 | 35,450 | 4,625 | 3,403 | 1,863 | 194 |
| 46 Purdue University | 64,464 | 18,301 | 10,897 | 1,331 | 4,195 | 25,697 | 1,183 | 1,434 | 1,406 |
| 47 Woods Hole Oceanographic Inst | 62,356 | 9,714 | 0 | 52,642 | 0 | 0 | 0 | 0 | 0 |
| 48 University of Utah | 62,297 | 7,372 | 6,099 | 1,978 | 2,771 | 42,728 | 488 | 361 | 0 |
| 49 Northwestern University | 61,812 | 10,195 | 9,357 | 768 | 1,031 | 34,869 | 767 | 605 | 4,220 |
| 50 Boston University | 60,459 | 2,476 | 8,314 | 80 | 949 | 45,408 | 349 | 586 | 2,297 |
| Total, 1st 50 insts. | 6,088,391 | 979,381 | 832,416 | 413,221 | 359,822 | 3,192,438 | 89,262 | 122,994 | 98,857 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-40. Federally financed R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

[Dollars in thousands]

Page 2 of 4

| Institution ranking | Total | Engi- neering | Physica sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|------------------------------|-----------|------------------|---------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 51 Utah State University | 58,965 | 38,495 | 3,039 | 4,998 | 151 | 10,194 | 307 | 209 | 1,572 |
| 52 University of Virginia | 58,801 | 9,776 | 8,134 | 4,670 | 3,091 | 30,665 | 2,064 | 251 | 150 |
| 53 Univ. Of Tennessee System | 58,648 | 19,355 | 6,408 | 745 | 1,787 | 28,510 | 338 | 1,491 | 14 |
| 54 Michigan State University | 58,221 | 4,922 | 14,485 | 740 | 374 | 30,013 | 1,748 | 3,089 | 2,850 |
| 55 Indiana University | 57,155 | 42 | 17,818 | 322 | 2,125 | 33,223 | 2,174 | 997 | 654 |
| 56 Univ of Massachusetts | 56,018 | 4,752 | 8,432 | 1,200 | 7,591 | 29,848 | 2,463 | 1,242 | 490 |
| 57 SUNY at Stony Brook | 55,911 | 2,014 | 15,165 | 6,018 | 2,562 | 27,702 | 849 | 1,521 | 80 |
| 58 UT SW Medical Ctr-Dallas | 54,965 | 0 | 0 | 0 | 0 | 54,965 | 0 | 0 | 0 |
| 59 New Mexico State Univ | 54,688 | 32,984 | 2,157 | 1,797 | 8,775 | 8,463 | 250 | 262 | 0 |
| 60 Univ of Cal Irvine | 52,492 | 2,608 | 11,110 | 0 | 3,353 | 34,182 | 0 | 1,229 | 10 |
| Total, 1st 60 insts. | 6,654,255 | 1,094,329 | 919,164 | 433,711 | 389,631 | 3,480,203 | 99,455 | 133,285 | 104,477 |
| 61 Emory University | 52,367 | 0 | 3,872 | 0 | 205 | 47,700 | 391 | 199 | 0 |
| 62 Princeton University | 51,559 | 11,931 | 16,288 | 3,930 | 4,818 | 11,174 | 2,387 | 1,031 | 0 |
| 63 Colorado State University | 50,744 | 11,768 | 3,735 | 7,414 | 731 | 22,459 | 1,556 | 3,074 | 7 |
| 64 Oregon State University | 50,344 | 5,445 | 2,183 | 16,568 | 737 | 21,948 | 63 | 693 | 2,907 |
| 65 Louisiana State Univ | 48,802 | 8,345 | 4,912 | 5,975 | 326 | 28,599 | 390 | 234 | 21 |
| 66 Univ of Cal Santa Barbara | 47,873 | 18,807 | 13,336 | 7,029 | 1,888 | 1,843 | 2,075 | 2,895 | 0 |
| 67 VA Polytech Inst & St U | 45,949 | 22,304 | 4,648 | 1,580 | 1,518 | 13,035 | 664 | 2,200 | 0 |
| 68 University of Cincinnati | 44,966 | 6,903 | 3,007 | 86 | 345 | 32,820 | 222 | 121 | 1,462 |
| 69 Univ of Ill Chicago | 43,968 | 2,335 | 5,607 | 265 | 1,370 | 32,058 | 163 | 817 | 1,353 |
| 70 University of Georgia | 43,864 | 395 | 2,492 | 1,826 | 2,079 | 34,431 | 1,137 | 1,504 | 0 |
| Total, 1st 70 insts. | 7,134,891 | 1,182,562 | 979,244 | 478,384 | 403,648 | 3,726,270 | 108,503 | 146,053 | 110,227 |
| 71 N C State Univ at Raleigh | 43,787 | 15,077 | 3,797 | 2,625 | 2,083 | 19,244 | 128 | 833 | 0 |
| 72 CUNY Mt Sinai Sch of Med | 43,607 | 0 | 0 | 0 | 0 | 43,607 | 0 | 0 | 0 |
| 73 University of Connecticut | 43,477 | 3,450 | 1,159 | 4,341 | 545 | 32,658 | 830 | 339 | 155 |
| 74 Univ of Hawaii-Manoa | 42,665 | 714 | 12,905 | 15,393 | 889 | 8,474 | 241 | 524 | 3,525 |
| 75 Virginia Commonwlth Univ | 41,606 | 35 | 1,299 | 0 | 99 | 39,440 | 489 | 244 | 0 |
| 76 Rutgers the St Univ of NJ | 40,977 | 4,262 | 9,765 | 710 | 6,389 | 12,821 | 2,593 | 4,437 | 0 |
| 77 Univ of MD Balt Prof Sch | 38,841 | 0 | 0 | 0 | 0 | 38,841 | 0 | 0 | 0 |
| 78 Tufts University | 38,290 | 1,626 | 1,184 | 3,737 | 174 | 30,518 | 749 | 302 | 0 |
| 79 Brown University | 36,919 | 5,704 | 5,355 | 3,961 | 6,139 | 14,315 | 1,301 | 144 | 0 |
| 80 Rockefeller University | 36,788 | 0 | 5,365 | 0 | 48 | 31,375 | 0 | 0 | 0 |
| Total, 1st 80 insts. | 7,541,848 | 1,213,430 | 1,020,073 | 509,151 | 420,014 | 3,997,563 | 114,834 | 152,876 | 113,907 |
| 81 Georgetown University | 36,093 | 0 | 3,212 | 336 | 975 | 29,137 | 61 | 2,372 | 0 |
| 82 Iowa St U of Sci & Tech | 34,043 | 11,496 | 2,157 | 218 | 1,545 | 16,825 | 10 | 1,792 | 0 |
| 83 Univ of Med & Dent of N J | 33,185 | 0 | 0 | 0 | 0 | 33,185 | 0 | 0 | 0 |
| 84 Florida State University | 32,927 | 54 | 6,799 | 4,183 | 824 | 3,224 | 1,449 | 257 | 16,137 |
| 85 Univ of Alaska Fairbanks | 31,896 | 2,662 | 7,950 | 14,079 | 133 | 6,324 | 0 | 748 | 0 |
| 86 U of VT & State Agr Coll | 30,555 | 504 | 662 | 164 | 182 | 28,017 | 1,002 | 5 | 19 |
| 87 Univ of South Florida | 30,481 | 18,910 | 1,459 | 2,785 | 134 | 6,250 | 655 | 288 | 0 |
| 88 Wake Forest University | 30,182 | 0 | 353 | 0 | 150 | 29,671 | 0 | 0 | 8 |
| 89 Dartmouth College | 30,135 | 4,065 | 2,386 | 547 | 267 | 22,735 | 341 | 101 | 0 |
| 90 University of Kentucky | 29,612 | 2,821 | 1,453 | 93 | 504 | 21,041 | 217 | 744 | 2,739 |
| Total, 1st 90 insts. | 7,860,957 | 1,253,942 | 1,046,504 | 531,556 | 424,728 | 4,193,972 | 118,262 | 159,183 | 132,810 |
| 91 U Tex Hlth Sci Ctr S Anto | 29,431 | 0 | 0 | 0 | 0 | 29,431 | 0 | 0 | 0 |
| 92 University of Dayton | 29,044 | 24,163 | 1,044 | 56 | 1,046 | 277 | 2,446 | 12 | 0 |
| 93 U Tex Hlth Sci Ctr Houstn | 29,017 | 0 | 0 | 400 | 0 | 27,835 | 0 | 782 | 0 |
| 94 UT MD Anderson Cancer Ctr | 28,889 | 0 | 1,860 | 0 | 1,047 | 25,982 | 0 | 0 | 0 |
| 95 Wayne State University | 28,488 | 2,121 | 2,304 | 0 | 109 | 23,079 | 465 | 410 | 0 |
| 96 Tulane University | 28,331 | 493 | 413 | 25 | 307 | 24,894 | 129 | 1,835 | 235 |
| 97 Oregon Hlth Sciences Univ | 27,241 | 0 | 0 | 0 | 0 | 26,154 | 1,087 | 0 | 0 |
| 98 Washington State Univ | 26,884 | 2,037 | 1,849 | 527 | 433 | 18,048 | 155 | 1,942 | 1,893 |
| 99 George Washington Univ | 26,81 | 4,715 | 858 | 24 | 5,232 | 15,728 | 141 | 81 | 38 |
| 100 University of Kansas | 26,78 | 2,478 | 2,788 | 576 | 297 | 15,184 | 764 | 15 | 4,684 |
| Total, 1st 100 insts. | 8,141,885 | 1,289,949 | 1,057,620 | 533,164 | 433,199 | 4,400,584 | 123,449 | 164,260 | 139,660 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-40. Federally financed R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 3 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|-------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 101 Arizona State University | 26,590 | 4,933 | 6,697 | 7,073 | 1,022 | 3,228 | 1,552 | 2,076 | 9 |
| 102 Temple University | 26,164 | 95 | 1,177 | 0 | 179 | 19,551 | 565 | 4,597 | 0 |
| 103 University of New Mexico | 25,449 | 10,689 | 1,989 | 802 | 118 | 10,373 | 418 | 785 | 275 |
| 104 Univ of Missouri Columbia | 24,422 | 1,624 | 970 | 409 | 184 | 19,340 | 492 | 1,402 | 1 |
| 105 Rensselaer Polytech Inst | 22,809 | 16,370 | 3,016 | 573 | 1,824 | 639 | 65 | 1,41 | 181 |
| 106 Univ of Nebraska-Lincoln | 22,686 | 1,337 | 3,008 | 679 | 489 | 16,259 | 119 | 754 | 41 |
| 107 Thomas Jefferson Univ | 22,451 | 0 | 0 | 0 | 0 | 22,451 | 0 | 0 | 0 |
| 108 U Tex Med Brnch Galveston | 21,693 | 0 | 0 | 0 | 0 | 21,693 | 0 | 0 | 0 |
| 109 Medical College of Wis | 21,594 | 0 | 0 | 0 | 0 | 21,594 | 0 | 0 | 0 |
| 110 Mississippi State Univ | 21,426 | 8,199 | 1,114 | 575 | 112 | 9,910 | 0 | 1,151 | 365 |
| Total, 1st 110 insts. | 8,377,169 | 1,333,196 | 1,075,591 | 543,275 | 437,127 | 4,545,622 | 126,660 | 175,166 | 140,532 |
| 111 Univ Alabama Huntsville | 21,355 | 8,108 | 9,339 | 914 | 2,567 | 427 | 0 | 0 | 0 |
| 112 Univ of South Carolina | 20,587 | 2,308 | 3,936 | 2,827 | 563 | 8,328 | 1,123 | 1,415 | 87 |
| 113 Univ of Rhode Island | 20,511 | 1,689 | 358 | 14,239 | 73 | 2,334 | 806 | 1,012 | 0 |
| 114 University of Oregon | 20,151 | 722 | 8,895 | 2,206 | 684 | 5,803 | 1,274 | 567 | 0 |
| 115 Rice University | 19,997 | 2,677 | 6,640 | 2,274 | 6,355 | 1,664 | 253 | 134 | 0 |
| 116 Syracuse University | 18,924 | 3,738 | 4,204 | 609 | 5,459 | 3,783 | 304 | 827 | 0 |
| 117 Brandeis University | 18,819 | 0 | 2,616 | 0 | 698 | 10,549 | 1,086 | 3,870 | 0 |
| 118 West Virginia University | 18,451 | 3,264 | 994 | 5,106 | 600 | 8,260 | 89 | 124 | 14 |
| 119 Oklahoma State University | 17,744 | 6,931 | 2,485 | 116 | 323 | 6,754 | 75 | 1,035 | 25 |
| 120 University of Delaware | 17,588 | 4,305 | 4,325 | 3,786 | 1,448 | 2,472 | 385 | 867 | 0 |
| Total, 1st 120 insts. | 8,571,256 | 1,366,938 | 1,119,383 | 575,352 | 455,897 | 4,595,996 | 132,055 | 185,017 | 140,658 |
| 121 U of Houston | 17,575 | 2,754 | 9,692 | 321 | 651 | 2,873 | 907 | 316 | 61 |
| 122 US Naval Postgrad School | 17,333 | 5,575 | 2,443 | 3,543 | 1,635 | 0 | 0 | 2,748 | 1,389 |
| 123 University of Oklahoma | 16,871 | 2,009 | 1,736 | 2,399 | 754 | 9,289 | 104 | 576 | 4 |
| 124 Univ of Cal Riverside | 15,806 | 0 | 3,848 | 892 | 324 | 10,499 | 113 | 130 | 0 |
| 125 Kans St U - Ag & App Sci | 15,651 | 1,921 | 2,857 | 167 | 330 | 9,392 | 157 | 488 | 339 |
| 126 University of Mississippi | 14,973 | 1,875 | 3,642 | 0 | 0 | 8,947 | 283 | 226 | 0 |
| 127 San Diego State Univ | 14,647 | 3,318 | 1,290 | 177 | 1,102 | 6,263 | 1,087 | 599 | 0 |
| 128 Auburn University | 14,629 | 5,017 | 1,024 | 93 | 432 | 6,760 | 28 | 108 | 1,167 |
| 129 SUNY Hlth Sci Ctr - Brkln | 14,574 | 0 | 0 | 0 | 0 | 14,574 | 0 | 0 | 0 |
| 130 SUNY at Albany | 14,497 | 0 | 1,578 | 4,953 | 634 | 1,936 | 2,321 | 3,075 | 0 |
| Total, 1st 130 insts. | 8,727,852 | 1,389,407 | 1,147,493 | 587,897 | 461,759 | 4,666,529 | 137,055 | 193,283 | 144,429 |
| 131 Univ of New Hampshire | 14,455 | 847 | 4,738 | 5,224 | 163 | 2,397 | 105 | 867 | 114 |
| 132 University of N Dakota | 14,398 | 6,793 | 34 | 2,704 | 0 | 4,127 | 9 | 399 | 332 |
| 133 Univ of P R-Mayaguez | 14,337 | 1,063 | 171 | 1,251 | 21 | 11,759 | 0 | 0 | 72 |
| 134 Clemson University | 14,221 | 4,703 | 1,089 | 46 | 1,092 | 5,838 | 34 | 1,419 | 0 |
| 135 St Louis University | 14,106 | 0 | 90 | 704 | 40 | 13,264 | 0 | 4 | 4 |
| 136 Univ of Cal Santa Cruz | 13,855 | 0 | 5,810 | 2,725 | 480 | 4,308 | 401 | 131 | 0 |
| 137 University of Idaho | 13,812 | 4,101 | 1,885 | 998 | 0 | 7,246 | 2 | 488 | 92 |
| 138 Florida A & M University | 13,110 | 1,485 | 1,929 | 0E | 163 | 6,891E | 0 | 2,642 | 0 |
| 139 Howard University | 13,067 | 1,4981 | 2,9531 | 1181 | 321 | 7,8301 | 621 | 5741 | 01 |
| 140 University of Notre Dame | 12,867 | 1,928 | 8,904 | 28 | 365 | 1,437 | 118 | 69 | 18 |
| Total, 1st 140 insts. | 8,866,080 | 1,411,825 | 1,174,096 | 601,695 | 464,115 | 4,731,626 | 137,786 | 199,876 | 145,061 |
| 141 University of Wyoming | 12,207 | 1,382 | 1,859 | 1,825 | 641 | 6,001 | 268 | 147 | 84 |
| 142 Univ of Nevada - Reno | 11,922 | 1,870 | 916 | 2,467 | 13 | 6,524 | 17 | 115 | 0 |
| 143 The Medical Col of Penna | 11,704 | 0 | 0 | 0 | 0 | 11,704 | 0 | 0 | 0 |
| 144 Unif Serv Univ of Hlth Sc | 11,288 | 0 | 0 | 0 | 0 | 11,288 | 0 | 0 | 0 |
| 145 Lehigh University | 11,242 | 7,353 | 2,744 | 172 | 206 | 473 | 170 | 124 | 0 |
| 146 Southern Methodist Univ | 11,000E | 6771 | 7731 | 6,8961 | 1,4821 | 3361 | 1701 | 6661 | 01 |
| 147 Med Univ of So Carolina | 10,910 | 0 | 0 | 0 | 0 | 10,910 | 0 | 0 | 0 |
| 148 Univ of Ark Fayetteville | 10,831 | 2,193 | 1,286 | 7 | 213 | 6,754 | 7 | 323 | 48 |
| 149 CUNY City College | 10,554 | 3,757 | 4,905 | 214 | 279 | 2,664 | 142 | 153 | 440 |
| 150 Northeastern University | 10,217 | 3,469 | 2,264 | 0 | 1,130 | 2,635 | 460 | 71 | 188 |
| Total, 1st 150 insts. | 8,977,955 | 1,430,526 | 1,188,843 | 613,276 | 468,079 | 4,790,915 | 139,020 | 201,475 | 145,821 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

117

Table B-40. Federally financed R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

[Dollars in thousands]

Page 4 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|---------------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 151 SUNY Hlth Sci Ctr - Syracuse | 9,065 | 0 | 0 | 0 | 0 | 9,965 | 0 | 0 | 0 |
| 152 Texas Tech University | 6,695 | 2,668 | 735 | 177 | 117 | 4,013 | 8 | 1,977 | 0 |
| 153 Univ of Central Florida | 9,354 | 1,144 | 1,288 | 791 | 392 | 103 | 112 | 0 | 5,524 |
| 154 U of Neb Med Ctr at Omaha | 9,078 | 0 | 0 | 0 | 0 | 9,078 | 0 | 0 | 0 |
| 155 Montana State University | 9,052 | 762 | 2,072 | 112 | 73 | 5,816 | 0 | 217 | 0 |
| 156 Univ of Maine Orono | 9,046 | 606 | 720 | 2,806 | 27 | 4,305 | 212 | 370 | 0 |
| 157 New York Medical College | 9,028 | 0 | 0 | 0 | 0 | 9,028 | 0 | 0 | 0 |
| 158 Desert Research Institute | 8,767 | 0 | 0 | 6,983 | 0 | 519 | 0 | 1,265 | 0 |
| 159 University of Louisville | 8,637 | 506 | 70 | 35 | 77 | 7,006 | 0 | 103 | 0 |
| 160 Hahnemann University | 8,244 | 0 | 0 | 0 | 0 | 7,406 | 838 | 0 | 0 |
| Total, 1st 160 insts. | 9,068,821 | 1,436,212 | 1,194,568 | 624,180 | 468,765 | 4,848,154 | 140,190 | 205,407 | 151,345 |
| 161 Medical Col of Georgia | 8,045 | 0 | 0 | 0 | 0 | 8,045 | 0 | 0 | 0 |
| 162 Southern Ill U-Carbondale | 8,035 | 1,124 | 138 | 521 | 114 | 5,303 | 266 | 429 | 140 |
| 163 Eastern VA Medical School | 7,782 | 0 | 0 | 0 | 0 | 7,782 | 0 | 0 | 0 |
| 164 NC Ag & Tech State Univ | 7,503 | 3,644 | 371 | 0 | 631 | 2,682 | 27 | 13 | 30 |
| 165 University of Denver | 7,476 | 3,842 | 2,417 | 0 | 0 | 299 | 750 | 168 | 0 |
| 166 Wright State University | 7,426 | 1,048 | 1,221 | 0 | 731 | 4,238 | 182 | 6 | 0 |
| 167 San Jose State University | 7,370 | 1,790 | 669 | 2,936 | 94 | 6,78 | 1,813 | 0 | 0 |
| 168 Univ of South Alabama | 7,237 | 5 | 61 | 156 | 29 | 6,771 | 161 | 53 | 1 |
| 169 Old Dominion U Res Fdn | 7,036 | 3,520 | 1,225 | 1,173 | 988 | 130 | 0 | 0 | 0 |
| 170 Polytechnic University | 7,025 | 5,218 | 1,530 | 0 | 49 | 0 | 0 | 28 | 260 |
| Total, 1st 170 insts. | 9,143,756 | 1,456,403 | 1,202,200 | 628,966 | 471,401 | 4,883,472 | 143,489 | 206,109 | 151,716 |
| 171 The University of Alabama | 6,941 | 2,871 | 1,931 | 378 | 60 | 795 | 279 | 202 | 425 |
| 172 Oregon Grad Inst Sci/Tech | 6,837 | 1,043 | 2,811 | 1,406 | 1,577 | 0 | 0 | 0 | 0 |
| 173 Boston College | 6,798 | 0 | 2,649 | 392 | 3,065 | 488 | 55 | 149 | 0 |
| 174 Catholic Univ of America | 6,783 | 1,571 | 3,006 | 0 | 1 | 623 | 586 | 96 | 0 |
| 175 Drexel University | 6,761 | 4,005 | 1,742 | 519 | 158 | 299 | 0 | 38 | 0 |
| 176 Univ of Wis-Milwaukee | 6,715 | 1,193 | 1,533 | 1,155 | 16 | 1,366 | 331 | 865 | 256 |
| 177 U of Arkansas Med Sci Cam | 6,654 | 0 | 0 | 0 | 0 | 6,654 | 0 | 0 | 0 |
| 178 College of William & Mary | 6,460 | 0 | 2,135 | 3,346 | 640 | 162 | 58 | 119 | 0 |
| 179 North Dakota State Univ | 6,417 | 733 | 804 | 24 | 105 | 4,044 | 121 | 466 | 120 |
| 180 Meharry Medical College | 6,391 | 0 | 0 | 0 | 0 | 6,391 | 0 | 0 | 0 |
| Total, 1st 180 insts. | 9,210,513 | 1,467,819 | 1,219,711 | 636,186 | 477,023 | 4,904,294 | 144,919 | 208,044 | 152,517 |
| 181 Loyola Univ - Chicago | 6,203 | 0 | 246 | 0 | 56 | 4,814 | 600 | 487 | 0 |
| 182 Rush University | 6,083 | 0 | 0 | 0 | 0 | 5,392 | 691 | 0 | 0 |
| 183 Albany Med Ctr Grad Sch | 6,073 | 0 | 0 | 0 | 0 | 6,073 | 0 | 0 | 0 |
| 184 Michigan Tech University | 6,045 | 3,490 | 1,048 | 246 | 59 | 1,070 | 0 | 132 | 0 |
| 185 Med Col of Ohio at Toledo | 5,956 | 0 | 0 | 0 | 0 | 5,956 | 0 | 0 | 0 |
| 186 Univ of Texas at Dallas | 5,888 | 32 | 3,718 | 601 | 272 | 1,080 | 108 | 77 | 0 |
| 187 N Mex Inst Mining & Tech | 5,610 | 2,519 | 1,087 | 1,940 | 0 | 64 | 0 | 0 | 0 |
| 188 Alabama A & M University | 5,560 | 77 | 2,716 | 0 | 0 | 2,630 | 0 | 137 | 0 |
| 189 Univ of Texas at El Paso | 5,451 | 2,616 | 611 | 556 | 399 | 958 | 201 | 110 | 0 |
| 190 Univ of P R-Med Sci Campus | 5,366 | 0 | 0 | 0 | 0 | 5,366 | 0 | 0 | 0 |
| Total, 1st 190 insts. | 9,268,748 | 1,476,553 | 1,229,137 | 639,529 | 477,809 | 4,937,697 | 146,519 | 208,987 | 152,517 |
| 191 Brigham Young University | 5,357 | 3,313 | 940 | 88 | 70 | 653 | 0 | 0 | 293 |
| 192 Colorado School of Mines | 5,310 | 2,576 | 1,519 | 162 | 518 | 0 | 0 | 99 | 436 |
| 193 Morehouse School of Med | 5,149 | 01 | 01 | 01 | 01 | 5,1491 | 01 | 01 | 01 |
| 194 Tuskegee University | 4,783 | 652 | 212 | 0 | 0 | 3,834 | 0 | 29 | 56 |
| 195 University of Lowell | 4,662 | 1,310 | 1,302 | 1,017 | 82 | 884 | 0 | 14 | 53 |
| 196 Kent State University | 4,656 | 77 | 1,861 | 71 | 1,313 | 901 | 170 | 263 | 0 |
| 197 CUNY Hunter College | 4,531 | 0 | 1,797 | 15 | 40 | 1,903 | 744 | 32 | 0 |
| 198 U of MD Baltimore County | 4,147 | 475 | 1,387 | 0 | 549 | 1,045 | 351 | 340 | 0 |
| 199 Ohio University | 4,140 | 2,332 | 841 | 0 | 0 | 700 | 267 | 0 | 0 |
| 200 Southern U & A&M College | 4,094 | 429 | 87 | 0 | 307 | 3,217 | 0 | 54 | 0 |
| Total, 1st 200 insts. | 9,315,577 | 1,487,717 | 1,239,083 | 640,882 | 480,688 | 4,955,983 | 148,051 | 209,818 | 153,355 |
| Total, all other sampled insts. | 235,398 | 38,215 | 40,637 | 18,647 | 8,957 | 99,135 | 13,798 | 13,386 | 2,623 |
| Estimated total non-sampled insts. | 60,070 | 8,999 | 10,443 | 14,600 | 2,657 | 12,828 | 7,531 | 2,230 | 781 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-41. Non-Federal R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

[Dollars in thousands]

Page 1 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|-------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 6,713,565 | 1,146,820 | 490,945 | 373,170 | 231,618 | 3,695,526 | 90,175 | 476,741 | 208,571 |
| 1 Texas A & M University | 179,799 | 49,403 | 9,517 | 18,047 | 2,532 | 86,623 | 376 | 7,690 | 5,611 |
| 2 University of Minnesota | 148,236 | 17,162 | 4,014 | 6,362 | 3,887 | 106,956 | 2,080 | 7,368 | 407 |
| 3 Univ of Wis-Madison | 130,979 | 15,307 | 7,160 | 6,168 | 2,224 | 85,153 | 1,677 | 12,350 | 940 |
| 4 University of Michigan | 130,122 | 22,458 | 4,342 | 4,004 | 5,456 | 58,851 | 2,392 | 26,458 | 6,161 |
| 5 Cornell University | 128,895 | 16,883 | 9,597 | 3,054 | 5,132 | 81,673 | 1,803 | 10,169 | 584 |
| 6 Univ of Cal Davis | 120,651 | 3,645 | 942 | 104 | 704 | 113,718 | 88 | 1,450 | 0 |
| 7 Pennsylvania State Univ | 120,270 | 43,333 | 5,472 | 7,782 | 1,344 | 48,039 | 2,525 | 5,947 | 5,828 |
| 8 Univ of Texas at Austin | 118,610 | 32,937 | 18,507 | 18,641 | 8,046 | 9,632 | 581 | 12,066 | 18,200 |
| 9 University of Georgia | 112,878 | 3,415 | 4,214 | 4,911 | 3,474 | 77,311 | 2,519 | 17,034 | 0 |
| 10 Univ of Ill Urbana | 110,572 | 24,433 | 5,298 | 14,873 | 9,119 | 25,761 | 2,085 | 7,322 | 21,681 |
| Total, 1st 10 insts. | 1,301,012 | 228,976 | 69,063 | 83,946 | 41,918 | 693,717 | 16,126 | 107,854 | 59,412 |
| 11 University of Arizona | 102,713 | 7,231 | 28,794 | 15,753 | 1,148 | 42,441 | 157 | 6,257 | 932 |
| 12 Ohio State University | 99,691 | 30,029 | 4,739 | 1,692 | 687 | 50,642 | 260 | 3,470 | 8,172 |
| 13 Univ of MD College Park | 99,612 | 27,628 | 25,421 | 1,844 | 13,585 | 13,267 | 3,800 | 14,067 | 0 |
| 14 Univ of Cal Berkeley | 99,344 | 22,725 | 8,529 | 1,435 | 1,415 | 46,094 | 2,729 | 13,326 | 3,091 |
| 15 Rutgers the St Univ of NJ | 97,008 | 17,432 | 7,508 | 5,239 | 6,400 | 46,362 | 3,605 | 8,568 | 1,894 |
| 16 N.C. State Univ at Raleigh | 87,346 | 25,104 | 1,814 | 2,276 | 2,690 | 52,014 | 91 | 2,957 | 0 |
| 17 Louisiana State Univ | 87,047 | 12,545 | 4,252 | 8,870 | 1,628 | 54,505 | 405 | 3,802 | 1,040 |
| 18 Univ of Cal Los Angeles | 82,353 | 7,340 | 1,651 | 3,361 | 1,453 | 53,224 | 1,899 | 12,925 | 0 |
| 19 Iowa St U of Sci & Tech | 81,902 | 15,478 | 3,239 | 330 | 6,769 | 48,578 | 531 | 4,497 | 2,480 |
| 20 Baylor Col of Medicine | 79,329 | 0 | 0 | 0 | 0 | 79,329 | 0 | 0 | 0 |
| Total, 1st 20 insts. | 2,217,357 | 394,488 | 155,010 | 125,346 | 77,693 | 1,180,473 | 29,603 | 177,723 | 77,021 |
| 21 Mass Inst of Technology | 77,954 | 41,445 | 15,431 | 2,471 | 3,594 | 4,953 | 625 | 3,718 | 5,717 |
| 22 VA Polytech Inst & St U | 75,474 | 22,169 | 5,062 | 1,854 | 1,920 | 39,442 | 545 | 4,482 | 0 |
| 23 University of Florida | 75,064 | 15,819 | 4,736 | 2,586 | 2,058 | 45,163 | 1,119 | 2,637 | 946 |
| 24 Georgia Institute of Tech | 73,351 | 50,966 | 6,679 | 4,473 | 7,267 | 939 | 740 | 2,287 | 0 |
| 25 Northwestern University | 70,167 | 7,212 | 2,413 | 191 | 813 | 39,399 | 214 | 1,204 | 18,721 |
| 26 University of Connecticut | 69,872 | 17,205 | 2,778 | 2,455 | 1,875 | 39,608 | 2,082 | 2,686 | 1,183 |
| 27 Johns Hopkins Univ | 69,064 | 3,829 | 7,704 | 3,751 | 184 | 45,384 | 206 | 5,493 | 8,513 |
| 28 Michigan State University | 68,766 | 9,728 | 6,413 | 1,018 | 104 | 43,022 | 1,182 | 3,533 | 3,766 |
| 29 Univ. Of Tennessee System | 68,142 | 13,738 | 3,372 | 862 | 3,073 | 40,466 | 972 | 4,207 | 1,452 |
| 30 Harvard University | 66,722 | 126 | 3,386 | 488 | 328 | 33,929 | 765 | 27,352 | 348 |
| Total, 1st 30 insts. | 2,931,933 | 576,725 | 206,984 | 145,495 | 98,909 | 1,512,778 | 38,053 | 235,322 | 117,667 |
| 31 Purdue University | 65,915 | 14,165 | 3,570 | 551 | 1,191 | 40,904 | 338 | 5,153 | 43 |
| 32 Univ of Cal San Francisco | 63,021 | 0 | 0 | 0 | 0 | 63,021 | 0 | 0 | 0 |
| 33 UT MD Anderson Cancer Ctr | 62,394 | 0 | 2,246 | 0 | 1,311 | 58,837 | 0 | 0 | 0 |
| 34 Univ of Missouri Columbia | 59,889 | 8,114 | 1,027 | 526 | 87 | 44,917 | 435 | 4,292 | 491 |
| 35 Univ of Pennsylvania | 55,643 | 4,147 | 999 | 67 | 1,977 | 35,642 | 189 | 11,669 | 953 |
| 36 Univ of Nebraska-Lincoln | 54,912 | 8,372 | 1,634 | 2,317 | 827 | 39,090 | 299 | 2,020 | 353 |
| 37 Univ of Cal San Diego | 54,477 | 2,150 | 4,300 | 20,703 | 4,280 | 20,608 | 795 | 1,641 | 0 |
| 38 Stanford University | 54,254 | 14,679 | 4,849 | 2,255 | 1,893 | 27,999 | 1,211 | 1,368 | 0 |
| 39 Clemson University | 52,443 | 11,711 | 2,478 | 115 | 5,600 | 28,773 | 118 | 3,469 | 179 |
| 40 Auburn University | 52,166 | 13,802 | 2,754 | 108 | 678 | 33,878 | 18 | 4,441 | 487 |
| Total, 1st 40 insts. | 3,507,047 | 653,865 | 230,841 | 172,137 | 116,753 | 1,906,447 | 41,456 | 265,375 | 120,173 |
| 41 Oklahoma State University | 47,941 | 8,708 | 2,352 | 1,353 | 735 | 25,535 | 243 | 5,831 | 3,184 |
| 42 Univ of South Florida | 45,923 | 6,051 | 1,261 | 2,278 | 157 | 34,339 | 703 | 1,134 | 0 |
| 43 Univ of Massachusetts | 45,794 | 4,487 | 4,552 | 4,779 | 2,184 | 24,829 | 943 | 3,438 | 582 |
| 44 Washington University | 45,490 | 1,433 | 1,323 | 585 | 1,836 | 39,806 | 332 | 1,175 | 0 |
| 45 Univ of Southern Cal | 45,388 | 9,286 | 424 | 2,011 | 3,399 | 26,043 | 2,300 | 1,920 | 5 |
| 46 University of Kentucky | 45,347 | 9,351 | 374 | 38 | 84 | 30,748 | 1 | 338 | 4,413 |
| 47 Univ of MD Balt Prof Sch | 44,848 | 0 | 0 | 0 | 0 | 44,848 | 0 | 0 | 0 |
| 48 SUNY at Buffalo | 42,314 | 15,266 | 2,823 | 255 | 1,257 | 16,895 | 1,882 | 3,282 | 654 |
| 49 University of Washington | 41,960 | 5,626 | 2,785 | 1,115 | 634 | 27,471 | 433 | 2,002 | 1,894 |
| 50 University of Oklahoma | 41,774 | 6,726 | 3,294 | 6,657 | 1,690 | 18,135 | 255 | 4,419 | 598 |
| Total, 1st 50 insts. | 3,953,826 | 720,799 | 250,029 | 191,208 | 128,729 | 2,195,096 | 48,548 | 287,914 | 131,503 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-41. Non-Federal R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 2 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 51 Univ of Ill Chicago | 41,300 | 3,151 | 2,597 | 856 | 534 | 27,404 | 112 | 2,492 | 4,154 |
| 52 Oregon State University | 40,144 | 3,014 | 1,452 | 2,055 | 968 | 29,494 | 25 | 1,607 | 1,529 |
| 53 Washington State Univ | 39,972 | 3,988 | 576 | 196 | 175 | 28,408 | 149 | 6,295 | 185 |
| 54 Princeton University | 39,955 | 11,117 | 6,531 | 2,340 | 2,243 | 6,423 | 2,628 | 8,673 | 0 |
| 55 Univ of Cal Riverside | 39,086 | 0 | 1,196 | 627 | 330 | 36,931 | 78 | 923 | 0 |
| 56 Rockefeller University | 38,457 | 0 | 6,296 | 0 | 818 | 31,343 | 0 | 0 | 0 |
| 57 Univ. of Colorado | 38,329 | 6,956 | 3,251 | 3,391 | 784 | 20,782 | 1,629 | 1,536 | 0 |
| 58 University of Virginia | 38,014 | 8,340 | 3,078 | 652 | 811 | 20,358 | 342 | 4,284 | 149 |
| 59 Mississippi State Univ | 37,066 | 4,234 | 530 | 743 | 0 | 26,447 | 0 | 2,199 | 2,913 |
| 60 University of Iowa | 36,732 | 5,295 | 3,138 | 402 | 1,242 | 24,199 | 467 | 1,989 | 0 |
| Total, 1st 60 insts. | 4,342,881 | 766,894 | 277,674 | 202,470 | 136,634 | 2,446,886 | 53,978 | 317,912 | 140,433 |
| 61 Univ Alabama Birmingham | 36,117 | 3,294 | 228 | 4 | 704 | 31,661 | 196 | 30 | 0 |
| 62 Yale University | 35,744 | 2,080 | 1,577 | 575 | 996 | 26,905 | 1,495 | 2,116 | 0 |
| 63 Carnegie-Mellon Univ | 35,651 | 10,960 | 1,259 | 1,855 | 11,124 | 6,775 | 1,055 | 1,549 | 1,074 |
| 64 Kans St U - Ag & App Sci | 34,660 | 4,265 | 430 | 84 | 343 | 27,897 | 209 | 1,164 | 268 |
| 65 Duke University | 34,655 | 1,593 | 1,741 | 703 | 408 | 26,951 | 87 | 3,172 | 0 |
| 66 University of Kansas | 34,358 | 1,840 | 3,847 | 5,620 | 140 | 17,413 | 662 | 314 | 4,522 |
| 67 Wayne State University | 33,967 | 3,830 | 5,596 | 0 | 289 | 20,792 | 251 | 1,187 | 2,022 |
| 68 Univ of Hawaii-Manoa | 33,860 | 791 | 5,048 | 8,795 | 10 | 14,188 | 38 | 2,633 | 2,357 |
| 69 Univ of Alaska Fairbanks | 33,675 | 3,618 | 5,811 | 10,800 | 79 | 11,130 | 0 | 2,237 | 0 |
| 70 University of New Mexico | 32,279 | 9,713 | 1,090 | 826 | 444 | 16,742 | 134 | 1,216 | 2,114 |
| Total, 1st 70 insts. | 4,687,847 | 808,878 | 304,301 | 231,732 | 151,171 | 2,647,340 | 58,105 | 333,530 | 152,790 |
| 71 Arizona State University | 32,062 | 13,685 | 7,793 | 456 | 1,142 | 2,427 | 586 | 4,721 | 1,252 |
| 72 Indiana University | 32,036 | 89 | 4,714 | 233 | 577 | 22,279 | 915 | 1,946 | 1,283 |
| 73 Univ of Med & Dent of N J | 31,044 | 0 | 0 | 0 | 0 | 31,044 | 0 | 0 | 0 |
| 74 UT SW Medical Ctr-Dallas | 30,954 | 0 | 0 | 0 | 0 | 30,954 | 0 | 0 | 0 |
| 75 Univ of NC at Chapel Hill | 30,645 | 0 | 1,081 | 2,578 | 2,544 | 19,896 | 74 | 4,472 | 0 |
| 76 Emory University | 30,407 | 0 | 759 | 6 | 67 | 27,180 | 129 | 2,266 | 0 |
| 77 Florida State University | 30,006 | 911 | 7,040 | 3,813 | 2,203 | 4,642 | 1,717 | 6,528 | 3,152 |
| 78 University of Cincinnati | 29,495 | 7,247 | 1,662 | 93 | 131 | 18,675 | 102 | 230 | 1,355 |
| 79 Tulane University | 28,076 | 2,094 | 630 | 181 | 397 | 21,517 | 218 | 2,005 | 1,034 |
| 80 New York University | 27,755 | 0 | 365 | 71 | 1,027 | 21,083 | 289 | 4,176 | 744 |
| Total, 1st 80 insts. | 4,990,327 | 832,904 | 328,345 | 239,163 | 159,259 | 2,847,037 | 62,135 | 359,874 | 161,610 |
| 81 Utah State University | 27,485 | 2,199 | 1,392 | 5,845 | 145 | 11,566 | 190 | 1,066 | 5,082 |
| 82 West Virginia University | 27,091 | 2,117 | 443 | 1,208 | 9,852 | 12,365 | 54 | 1,046 | 6 |
| 83 University of Pittsburgh | 27,016 | 2,977 | 2,763 | 23 | 537 | 17,565 | 127 | 2,982 | 42 |
| 84 Univ of South Carolina | 26,890 | 4,666 | 1,774 | 6,790 | 1,431 | 6,791 | 1,138 | 3,928 | 372 |
| 85 University of Utah | 26,721 | 8,630 | 2,016 | 1,543 | 1,286 | 12,732 | 126 | 3,388 | 0 |
| 86 Columbia Univ Main Div | 26,499 | 5,870 | 864 | 564 | 897 | 15,609 | 112 | 2,583 | 0 |
| 87 SUNY at Stony Brook | 26,325 | 465 | 5,713 | 3,856 | 1,105 | 12,379 | 201 | 1,676 | 930 |
| 88 University of Miami | 26,200 | 850 | 74 | 3,645 | 53 | 20,671 | 150 | 414 | 343 |
| 89 Univ of Ark Fayetteville | 26,132 | 4,866 | 2,210 | 123 | 1,022 | 15,278 | 452 | 1,739 | 442 |
| 90 Univ of Cal Irvine | 25,582 | 1,960 | 1,190 | 193 | 723 | 19,079 | 0 | 2,437 | 0 |
| Total, 1st 90 insts. | 5,256,268 | 867,504 | 346,784 | 262,953 | 176,310 | 2,991,072 | 64,685 | 378,133 | 168,827 |
| 91 SUNY Hlth Sci Ctr - Syrac | 25,228 | 0 | 0 | 0 | 0 | 25,228 | 0 | 0 | 0 |
| 92 Unif Serv Univ of Hlth Sc | 24,792 | 0 | 0 | 0 | 0 | 24,792 | 0 | 0 | 0 |
| 93 Rensselaer Polytech Inst | 24,554 | 17,623 | 3,247 | 616 | 1,964 | 687 | 69 | 152 | 196 |
| 94 Texas Tech University | 24,447 | 6,133 | 2,412 | 597 | 425 | 11,473 | 126 | 2,643 | 638 |
| 95 University of Rochester | 23,367 | 3,655 | 1,001 | 92 | 175 | 15,929 | 2,412 | 76 | 27 |
| 96 Temple University | 23,285 | 139 | 1,544 | 8 | 225 | 17,570 | 677 | 3,091 | 31 |
| 97 Colorado State University | 23,223 | 4,258 | 923 | 793 | 292 | 13,886 | 51 | 3,018 | 2 |
| 98 Case Western Reserve Univ | 22,869 | 6,411E | 4,215E | 88E | 18E | 9,521E | 31E | 2,585E | 0E |
| 99 University of Delaware | 22,531 | 7,946 | 2,544 | 2,935 | 440 | 6,621 | 207 | 1,838 | 0 |
| 100 University of Chicago | 21,628 | 0 | 2,147 | 361 | 411 | 15,353 | 304 | 3,052 | 0 |
| Total, 1st 100 insts. | 5,492,192 | 913,669 | 364,817 | 268,443 | 180,260 | 3,132,132 | 68,562 | 394,588 | 169,721 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-41. Non-Federal R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 3 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|-----------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 101 Univ of Central Florida | 21,264 | 3,076 | 6,405 | 6,293 | 314 | 295 | 93 | 453 | 4,335 |
| 102 University of Idaho | 21,124 | 2,618 | 963 | 1,008 | 0 | 14,926 | 22 | 1,360 | 227 |
| 103 Virginia Commonwealth Univ | 21,124 | 13 | 577 | 0 | 20 | 19,088 | 137 | 1,289 | 0 |
| 104 U of Houston | 20,403 | 5,273 | 9,598 | 1,613 | 458 | 1,974 | 677 | 803 | 7 |
| 105 CUNY Mt Sinai Sch of Med | 20,145 | 0 | 0 | 0 | 0 | 20,145 | 0 | 0 | 0 |
| 106 U Tex Med Brnch Galveston | 18,917 | 0 | 0 | 0 | 0 | 18,917 | 0 | 0 | 0 |
| 107 Yeshiva University | 18,902 | 0 | 0 | 0 | 0 | 18,902 | 0 | 0 | 0 |
| 108 Montana State University | 18,596 | 2,109 | 2,338 | 180 | 142 | 12,777 | 7 | 1,043 | 0 |
| 109 Southern Ill U-Carbondale | 17,838 | 3,069 | 1,015 | 374 | 2,221 | 7,550 | 237 | 982 | 2,390 |
| 110 N Mex Inst Mining & Tech | 17,301 | 13,571 | 790 | 2,636 | 243 | 61 | 0 | 0 | 0 |
| Total, 1st 110 insts. | 5,687,806 | 943,398 | 386,503 | 280,547 | 183,658 | 3,246,767 | 69,735 | 400,518 | 176,680 |
| 111 SUNY Col of Env Sci & For | 16,698 | 6,014 | 1,211 | 1,906 | 335 | 6,828 | 0 | 396 | 8 |
| 112 U Tex Hlth Sci Ctr Houstn | 16,690 | 0 | 0 | 119 | 0 | 16,510 | 0 | 61 | 0 |
| 113 New Mexico State Univ | 16,600 | 2,741 | 533 | 3111 | 1,189 | 11,334 | 521 | 1101 | 3301 |
| 114 U Tex Hlth Sci Ctr S Anto | 16,232 | 0 | 0 | 0 | 0 | 16,232 | 0 | 0 | 0 |
| 115 Univ of P R-Mayaguez | 16,218 | 553 | 0 | 173 | 9 | 15,406 | 22 | 0 | 55 |
| 116 Lehigh University | 16,013 | 12,243 | 2,494 | 187 | 362 | 465 | 112 | 150 | 0 |
| 117 Univ of Rhode Island | 15,335 | 2,218 | 210 | 4,705 | 41 | 7,483 | 137 | 541 | 0 |
| 118 Rush University | 15,201 | 0 | 0 | 0 | 0 | 14,971 | 230 | 0 | 0 |
| 119 California Inst of Tech | 15,153 | 2,177 | 4,862 | 802 | 818 | 6,189 | 0 | 47 | 258 |
| 120 Syracuse University | 14,887 | 3,822 | 1,764 | 738 | 5,188 | 836 | 182 | 2,356 | 1 |
| Total, 1st 120 insts. | 5,846,833 | 973,166 | 397,577 | 289,488 | 191,600 | 3,343,021 | 70,470 | 404,179 | 177,332 |
| 121 Georgetown University | 14,774 | 0 | 736 | 52 | 276 | 11,983 | 9 | 1,017 | 651 |
| 122 U of VT & State Agr Coll | 14,607 | 492 | 363 | 262 | 70 | 12,992 | 244 | 15 | 169 |
| 123 Univ of Maine Orono | 14,559 | 2,319 | 171 | 1,544 | 16 | 9,474 | 82 | 953 | 0 |
| 124 The University of Alabama | 14,547 | 3,838 | 1,979 | 1,866 | 1,914 | 1,605 | 552 | 2,560 | 233 |
| 125 Oregon Hlth Sciences Univ | 14,179 | 01 | 01 | 01 | 01 | 13,916 | 2631 | 01 | 01 |
| 126 Dartmouth College | 13,602 | 1,336 | 1111 | 379 | 192 | 10,704 | 1671 | 4261 | 2871 |
| 127 Drexel University | 13,318 | 8,830 | 1,319 | 309 | 839 | 649 | 210 | 1,162 | 0 |
| 128 U of MD Center For EES | 13,273 | 0 | 0 | 13,273 | 0 | 0 | 0 | 0 | 0 |
| 129 Boston University | 13,196 | 1,247 | 642 | 37 | 114 | 8,659 | 133 | 1,050 | 1,316 |
| 130 Medical College of Wis | 13,028 | 0 | 0 | 0 | 0 | 13,028 | 0 | 0 | 0 |
| Total, 1st 130 insts. | 5,985,916 | 991,228 | 402,948 | 307,208 | 195,021 | 3,426,031 | 72,130 | 411,362 | 179,988 |
| 131 N J Inst of Technology | 12,494 | 3,582 | 166 | 3,681 | 2,070 | 0 | 0 | 218 | 2,777 |
| 132 Univ of Cal Santa Cruz | 12,492 | 314 | 7,077 | 1,969 | 276 | 2,333 | 63 | 460 | 0 |
| 133 Med Univ of So Carolina | 12,218 | 0 | 0 | 0 | 0 | 12,218 | 0 | 0 | 0 |
| 134 Brandeis University | 12,062 | 0 | 723 | 0 | 256 | 3,754 | 138 | 7,191 | 0 |
| 135 Univ of Cal Santa Barbara | 11,877 | 3,407 | 1,880 | 2,582 | 608 | 765 | 714 | 1,921 | 0 |
| 136 Univ of New Hampshire | 11,539 | 1,487 | 930 | 4,085 | 97 | 3,141 | 0 | 256 | 1,543 |
| 137 University of Wyoming | 10,624 | 528 | 273 | 1,221 | 96 | 6,215 | 14 | 662 | 1,615 |
| 138 Univ of Missouri Rolla | 10,422 | 6,433 | 1,996 | 337 | 377 | 281 | 9 | 16 | 973 |
| 139 Michigan Tech University | 9,992 | 6,876 | 248 | 78 | 18 | 1,920 | 0 | 843 | 9 |
| 140 Brown University | 9,844 | 1,452 | 807 | 708 | 3,150 | 3,339 | 249 | 139 | 0 |
| Total, 1st 140 insts. | 6,099,480 | 1,015,307 | 417,048 | 321,869 | 201,969 | 3,459,997 | 73,317 | 423,068 | 186,905 |
| 141 Univ of Nevada - Reno | 9,527 | 996 | 138 | 1,957 | 0 | 4,840 | 26 | 1,074 | 496 |
| 142 Wake Forest University | 9,472 | 0 | 250 | 0 | 0 | 8,965 | 41 | 6 | 210 |
| 143 Memphis State University | 9,407 | 814 | 243 | 2,324 | 132 | 2,096 | 2,165 | 1,633 | 0 |
| 144 Woods Hole Oceanographic Inst | 9,391 | 1,629 | 0 | 7,762 | 0 | 0 | 0 | 0 | 0 |
| 145 Univ of Wis-Milwaukee | 8,924 | 1,520 | 1,642 | 1,585 | 221 | 1,547 | 130 | 1,607 | 672 |
| 146 Ohio University | 8,842 | 3,434 | 820 | 141 | 28 | 4,221 | 98 | 100 | 0 |
| 147 U of Neb Med Ctr at Omaha | 8,766 | 0 | 0 | 0 | 0 | 8,766 | 0 | 0 | 0 |
| 148 Tufts University | 8,719 | 491 | 199 | 411 | 0 | 6,782 | 105 | 731 | 0 |
| 149 Thomas Jefferson Univ | 8,518 | 0 | 0 | 0 | 0 | 8,518 | 0 | 0 | 0 |
| 150 Tenn Technological Univ | 8,345 | 7,188 | 263 | 55 | 60 | 598 | 5 | 26 | 150 |
| Total, 1st 150 insts. | 6,189,391 | 1,031,379 | 420,603 | 336,104 | 202,410 | 3,506,330 | 75,887 | 428,245 | 188,433 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-41. Non-Federal R&D expenditures at universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 4 of 4

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|---------------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 151 Vandeilt University | 8,315 | 2,269 | 613 | 15 | 61 | 4,572 | 311 | 474 | 0 |
| 152 SUNY Hlth Sci Ctr - Brkln | 8,299 | 0 | 0 | 0 | 0 | 8,299 | 0 | 0 | 0 |
| 153 Univ Alabama Huntsville | 8,210 | 3,810 | 1,685 | 492 | 1,747 | 55 | 3 | 12 | 406 |
| 154 Desert Research Institute | 8,085 | 0 | 0 | 7,135 | 0 | 535 | 0 | 415 | 0 |
| 155 San Diego State Univ | 7,877 | 824 | 278 | 268 | 574 | 2,823 | 262 | 365 | 2,483 |
| 156 Univ of North Texas | 7,767 | 286 | 1,425 | 875 | 767 | 1,774 | 58 | 1,366 | 1,216 |
| 157 SUNY at Albany | 7,537 | 0 | 725 | 3,928 | 280 | 992 | 476 | 1,136 | 0 |
| 158 Univ of Southwestern LA | 7,445 | 1,670 | 388 | 98 | 2,648 | 1,525 | 86 | 591 | 639 |
| 159 University of Akron | 7,367 | 3,395 | 3,333 | 8 | 93 | 169 | 196 | 173 | 0 |
| 160 University of Louisville | 7,284 | 612 | 219 | 208 | 11 | 5,021 | 2 | 1,211 | 0 |
| Total, 1st 160 insts. | 6,267,577 | 1,044,245 | 429,269 | 349,131 | 208,591 | 3,531,895 | 77,281 | 433,988 | 193,177 |
| 161 University of Dayton | 7,133 | 6,559 | 299 | 14 | 81 | 67 | 7 | 106 | 0 |
| 162 University of Mississippi | 7,098 | 611 | 449 | 0 | 5 | 5,702 | 102 | 229 | 0 |
| 163 SUNY at Binghamton | 6,978 | 572 | 1,089 | 250 | 406 | 733 | 1,404 | 2,524 | 0 |
| 164 The Medical Col of Penna | 6,939 | 0 | 0 | 0 | 0 | 6,939 | 0 | 0 | 0 |
| 165 University of Lowell | 6,629 | 1,809 | 1,435 | 402 | 818 | 909 | 0 | 0 | 1,256 |
| 166 Creighton University | 6,524 | 0 | 0 | 0 | 0 | 6,524 | 0 | 0 | 0 |
| 167 University of Notre Dame | 6,506 | 2,702 | 1,831 | 19 | 78 | 1,591 | 32 | 1 | 252 |
| 168 Rice University | 6,270 | 2,026 | 1,830 | 575 | 363 | 1,253 | 182 | 41 | 0 |
| 169 Brigham Young University | 6,251 | 1,405 | 1,845 | 2 | 25 | 1,135 | 1 | 392 | 1,446 |
| 170 University of Oregon | 6,195 | 68 | 3,219 | 449 | 94 | 1,213 | 278 | 637 | 237 |
| Total, 1st 170 insts. | 6,334,100 | 1,059,997 | 441,266 | 350,842 | 210,461 | 3,557,961 | 79,287 | 437,918 | 196,368 |
| 171 Univ of Texas at Dallas | 5,187 | 1,140 | 1,596 | 866 | 576 | 1,449 | 110 | 312 | 138 |
| 172 Loyola Univ - Chicago | 6,057 | 0 | 40 | 0 | 46 | 5,422 | 344 | 202 | 3 |
| 173 North Dakota State Univ | 6,051 | 577 | 644 | 15 | 212 | 3,821 | 159 | 426 | 194 |
| 174 Wright State University | 6,025 | 1,263 | 1,107 | 171 | 422 | 2,565 | 102 | 95 | 0 |
| 175 South Dakota State Univ | 5,845 | 557 | 124 | 70 | 0 | 4,757 | 0 | 337 | 0 |
| 176 Florida Inst of Tech | 5,752 | 1,450 | 994 | 1,385 | 6 | 666 | 0 | 8 | 1,243 |
| 177 Northern Illinois Univ | 5,679 | 4221 | 1,3211 | 4131 | 5611 | 1,2071 | 1471 | 1,6081 | 01 |
| 178 Colorado School of Mines | 5,633 | 3,521 | 764 | 439 | 206 | 0 | 0 | 93 | 610 |
| 179 George Washington Univ | 5,555 | 1,183 | 97 | 11 | 391 | 3,512 | 24 | 321 | 16 |
| 180 Univ of Missouri Kan City | 5,543 | 0 | 400 | 58 | 1,439 | 2,784 | 6 | 528 | 328 |
| Total, 1st 180 insts. | 6,392,427 | 1,070,410 | 448,353 | 354,270 | 214,320 | 3,584,144 | 80,179 | 441,851 | 198,900 |
| 181 George Mason University | 5,517 | 2,326 | 47 | 12 | 433 | 300 | 19 | 2,379 | 1 |
| 182 Hahnemann University | 5,351 | 0 | 0 | 0 | 0 | 4,728 | 623 | 0 | 0 |
| 183 Georgia State University | 5,321 | 0 | 642 | 231 | 928 | 936 | 1,109 | 1,058 | 417 |
| 184 U of Arkansas Med Sci Cam | 5,244 | 0 | 0 | 0 | 0 | 5,244 | 0 | 0 | 0 |
| 185 Cleveland State Univ | 5,004 | 1,680 | 317 | 13 | 12 | 60 | 39 | 2,883 | 0 |
| 186 Inst Paper Sci and Tech | 4,796 | 2,691 | 1,135 | 0 | 370 | 605 | 0 | 0 | 0 |
| 187 Clarkson University | 4,551 | 3,234 | 1,001 | 43 | 132 | 8 | 8 | 0 | 133 |
| 188 Union College (NY) | 4,515 | 1,3341 | 7761 | 2061 | 558 | 1321 | 3031 | 1,2061 | 01 |
| 189 Howard University | 4,315 | 6191 | 7491 | 301 | 71 | 2,4291 | 121 | 4691 | 01 |
| 190 New York Medical College | 4,216 | 0 | 0 | 0 | 0 | 4,216 | 0 | 0 | 0 |
| Total, 1st 190 insts. | 6,441,257 | 1,082,294 | 453,020 | 354,762 | 216,671 | 3,602,921 | 82,292 | 449,846 | 199,451 |
| 191 Loma Linda University | 4,198 | 0 | 0 | 0 | 0 | 4,112 | 0 | 86 | 0 |
| 192 Northeastern University | 4,130 | 1,758 | 1,027 | 0 | 47 | 737 | 158 | 329 | 74 |
| 193 Medical Col of Georgia | 4,007 | 0 | 0 | 0 | 0 | 4,007 | 0 | 0 | 0 |
| 194 Univ of Tex at Arlington | 3,934 | 2,286 | 670 | 18 | 517 | 297 | 3 | 143 | 0 |
| 195 Polytechnic University | 3,894 | 2,646 | 1,084 | 0 | 0 | 0 | 0 | 11 | 153 |
| 196 Univ of South Alabama | 3,868 | 42 | 31 | 198 | 5 | 3,458 | 45 | 41 | 48 |
| 197 University of Montana | 3,864 | 186 | 39 | 105 | 23 | 2,226 | 7 | 660 | 618 |
| 198 Alfred University | 3,723 | 3,723 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 199 Old Dominion U Res Fdn | 3,543 | 446 | 47 | 363 | 222 | 2,403 | 11 | 51 | 0 |
| 200 University of Toledo | 3,450 | 1,879 | 1,057 | 7 | 38 | 426 | 21 | 22 | 0 |
| Total, 1st 200 insts. | 6,479,868 | 1,095,260 | 456,975 | 355,453 | 217,523 | 3,620,587 | 82,537 | 451,189 | 200,344 |
| Total, all other sampled insts. | 166,813 | 36,224 | 24,099 | 11,890 | 9,575 | 53,949 | 5,875 | 18,941 | 6,260 |
| Estimated total non-sampled insts. | 66,884 | 15,336 | 9,871 | 5,827 | 4,520 | 20,990 | 1,763 | 6,611 | 1,967 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-42. R&D expenditures at public universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 1 of 3

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|------------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 10,799,382 | 1,793,870 | 1,101,083 | 785,486 | 364,009 | 5,761,745 | 174,828 | 523,490 | 294,871 |
| 1 University of Michigan | 310,578 | 53,905 | 15,329 | 17,154 | 10,142 | 162,379 | 5,388 | 39,203 | 7,078 |
| 2 Univ of Wis-Madison | 309,841 | 39,781 | 29,538 | 22,033 | 7,871 | 178,337 | 8,553 | 22,661 | 1,067 |
| 3 University of Minnesota | 292,046 | 27,943 | 16,577 | 8,802 | 16,440 | 204,590 | 6,042 | 11,245 | 4,07 |
| 4 Texas A & M University | 272,800 | 62,791 | 17,538 | 64,027 | 5,475 | 106,885 | 1,686 | 9,329 | 6,069 |
| 5 Pennsylvania State Univ | 256,926 | 118,070 | 16,625 | 14,095 | 3,553 | 83,743 | 4,565 | 8,943 | 7,332 |
| 6 Univ of Cal Los Angeles | 246,795 | 24,213 | 23,136 | 12,215 | 7,394 | 157,626 | 6,681 | 15,530 | 0 |
| 7 University of Washington | 245,313 | 16,985 | 15,333 | 21,389 | 9,183 | 152,755 | 5,097 | 4,921 | 19,650 |
| 8 Univ of Cal San Francisco | 238,278 | 0 | 0 | 0 | 0 | 238,278 | 0 | 0 | 0 |
| 9 Univ of Cal San Diego | 237,032 | 7,454 | 30,989 | 73,805 | 8,743 | 111,314 | 2,617 | 2,110 | 0 |
| 10 Univ of Cal Berkeley | 231,061 | 52,124 | 50,711 | 5,389 | 5,314 | 87,951 | 6,414 | 19,550 | 3,608 |
| Total, 1st 10 insts. | 2,640,670 | 403,266 | 215,776 | 238,909 | 74,115 | 1,483,858 | 46,043 | 133,492 | 45,211 |
| 11 Univ of Texas at Austin | 228,203 | 58,968 | 40,985 | 25,285 | 10,543 | 19,785 | 2,259 | 15,335 | 55,043 |
| 12 Univ of Ill Urbana | 227,742 | 66,497 | 23,258 | 20,749 | 18,006 | 48,002 | 5,532 | 10,244 | 35,454 |
| 13 Univ of Cal Davis | 198,075 | 7,794 | 7,851 | 1,100 | 1,130 | 177,754 | 522 | 1,924 | 0 |
| 14 University of Arizona | 195,633 | 14,220 | 61,723 | 22,397 | 4,258 | 82,067 | 626 | 7,944 | 2,398 |
| 15 Ohio State University | 178,569 | 43,810 | 12,802 | 3,685 | 2,828 | 93,307 | 395 | 12,383 | 9,359 |
| 16 Georgia Institute of Tech | 168,193 | 116,867 | 15,314 | 10,257 | 16,660 | 2,153 | 1,696 | 5,246 | 0 |
| 17 Univ of MD College Park | 166,022 | 43,964 | 56,256 | 6,437 | 18,176 | 19,554 | 4,994 | 16,641 | 0 |
| 18 University of Georgia | 156,742 | 2,810 | 6,706 | 6,737 | 5,553 | 111,742 | 3,656 | 18,538 | 0 |
| 19 Univ. of Colorado | 154,723 | 20,660 | 21,438 | 23,643 | 4,198 | 75,398 | 2,178 | 4,208 | 0 |
| 20 University of Florida | 139,678 | 30,585 | 11,804 | 4,526 | 4,481 | 81,616 | 2,114 | 3,500 | 1,252 |
| Total, 1st 20 insts. | 4,454,250 | 810,441 | 473,913 | 363,725 | 159,948 | 2,195,236 | 73,015 | 229,255 | 148,717 |
| 21 Rutgers the St Univ of NJ | 137,985 | 21,694 | 17,273 | 5,949 | 12,789 | 59,183 | 6,198 | 13,005 | 1,894 |
| 22 Louisiana State Univ | 135,849 | 20,890 | 9,164 | 14,845 | 1,954 | 83,104 | 7,795 | 4,036 | 1,061 |
| 23 N C State Univ at Raleigh | 131,133 | 40,181 | 5,611 | 5,301 | 4,773 | 71,258 | 219 | 3,790 | 0 |
| 24 Purdue University | 130,379 | 32,466 | 14,467 | 1,882 | 5,386 | 66,601 | 1,521 | 6,607 | 1,449 |
| 25 Michigan State University | 126,987 | 14,650 | 20,898 | 1,758 | 4,478 | 73,035 | 2,930 | 6,622 | 6,616 |
| 26 Univ. Of Tennessee System | 126,790 | 33,093 | 9,780 | 1,607 | 4,860 | 68,976 | 1,310 | 3,698 | 1,466 |
| 27 Univ of NC at Chapel Hill | 123,113 | 0 | 6,481 | 3,192 | 7,964 | 92,270 | 1,013 | 10,193 | 0 |
| 28 VA Polytech Inst & St U | 121,423 | 44,473 | 9,710 | 3,434 | 3,438 | 52,477 | 1,209 | 6,682 | 0 |
| 29 University of Pittsburgh | 117,716 | 5,944 | 12,904 | 259 | 1,673 | 90,285 | 1,583 | 4,246 | 822 |
| 30 Iowa St U of Sci & Tech | 115,945 | 26,974 | 5,396 | 548 | 8,314 | 65,403 | 541 | 6,289 | 2,480 |
| Total, 1st 30 insts. | 5,721,570 | 1,050,806 | 585,597 | 404,500 | 211,577 | 2,917,828 | 90,334 | 296,423 | 164,505 |
| 31 University of Iowa | 115,778 | 9,707 | 17,498 | 540 | 1,745 | 82,386 | 1,009 | 2,893 | 0 |
| 32 University of Connecticut | 113,349 | 20,655 | 3,937 | 6,796 | 2,420 | 72,266 | 2,912 | 3,025 | 1,338 |
| 33 Univ Alabama Birmingham | 110,603 | 4,317 | 553 | 4 | 902 | 104,185 | 574 | 68 | 0 |
| 34 SUNY at Buffalo | 109,190 | 23,166 | 6,952 | 820 | 3,492 | 66,568 | 2,794 | 4,421 | 977 |
| 35 Univ of Massachusetts | 101,812 | 9,239 | 12,984 | 5,979 | 9,775 | 54,677 | 3,406 | 4,680 | 1,072 |
| 36 University of Virginia | 96,815 | 18,116 | 11,212 | 5,322 | 3,902 | 51,023 | 2,406 | 4,535 | 299 |
| 37 UT MD Anderson Cancer Ctr | 91,283 | 0 | 4,106 | 0 | 2,358 | 84,819 | 0 | 0 | 0 |
| 38 Oregon State University | 90,688 | 8,459 | 3,635 | 18,623 | 1,705 | 51,442 | 88 | 2,300 | 4,436 |
| 39 Indiana University | 89,191 | 131 | 22,532 | 555 | 2,702 | 55,502 | 3,089 | 2,943 | 1,737 |
| 40 University of Utah | 89,018 | 16,502 | 8,115 | 3,521 | 4,057 | 55,460 | 614 | 749 | 0 |
| Total, 1st 40 insts. | 6,729,297 | 1,161,098 | 677,121 | 446,660 | 244,635 | 3,596,156 | 107,226 | 322,037 | 174,364 |
| 41 Utah State University | 86,450 | 40,694 | 4,431 | 10,843 | 296 | 21,760 | 497 | 1,275 | 6,654 |
| 42 UT SW Medical Ctr-Dallas | 85,919 | 0 | 0 | 0 | 0 | 85,919 | 0 | 0 | 0 |
| 43 Univ of Ill Chicago | 85,268 | 5,486 | 8,204 | 1,121 | 1,904 | 59,462 | 275 | 3,309 | 5,507 |
| 44 Univ of Missouri Columbia | 84,311 | 9,738 | 1,997 | 935 | 271 | 64,257 | 927 | 5,694 | 492 |
| 45 Univ of MD Balt Prof Sch | 83,689 | 0 | 0 | 0 | 0 | 83,689 | 0 | 0 | 0 |
| 46 SUNY at Stony Brook | 82,236 | 2,479 | 20,878 | 9,874 | 3,667 | 40,081 | 1,050 | 3,197 | 1,010 |
| 47 Univ of Cal Irvine | 78,074 | 4,568 | 12,300 | 193 | 4,076 | 53,261 | 0 | 3,666 | 10 |
| 48 Univ of Nebraska-Lincoln | 77,598 | 9,709 | 4,642 | 2,996 | 1,316 | 55,349 | 418 | 2,774 | 394 |
| 49 Univ of Hawaii-Manoa | 76,525 | 1,505 | 17,953 | 24,188 | 899 | 22,662 | 279 | 3,157 | 5,882 |
| 50 Univ of South Florida | 76,404 | 24,961 | 2,720 | 5,063 | 291 | 40,589 | 1,358 | 1,422 | 0 |
| Total, 1st 50 insts. | 7,545,771 | 1,260,238 | 750,246 | 501,873 | 257,355 | 4,123,185 | 112,030 | 346,531 | 194,313 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

125

Table B-42. R&D expenditures at public universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 2 of 3

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|-------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 51 University of Kentucky | 74,959 | 12,172 | 1,827 | 131 | 588 | 51,789 | 218 | 1,082 | 7,152 |
| 52 University of Cincinnati | 74,461 | 14,150 | 4,669 | 179 | 476 | 51,495 | 324 | 351 | 2,817 |
| 53 Colorado State University | 73,967 | 16,026 | 4,658 | 8,207 | 1,023 | 36,345 | 1,607 | 6,092 | 9 |
| 54 New Mexico State Univ | 71,288 | 35,725 | 2,690 | 2,108 | 9,964 | 19,797 | 302 | 372 | 330 |
| 55 Washington State Univ | 66,856 | 8,925 | 2,425 | 723 | 608 | 48,456 | 304 | 8,237 | 2,078 |
| 56 Auburn University | 66,795 | 18,819 | 3,778 | 201 | 1,110 | 40,638 | 46 | 549 | 1,654 |
| 57 Clemson University | 66,664 | 16,414 | 3,567 | 161 | 6,692 | 34,611 | 152 | 4,888 | 179 |
| 58 Oklahoma State University | 65,685 | 15,639 | 4,837 | 1,469 | 1,058 | 32,289 | 318 | 6,866 | 3,209 |
| 59 Univ of Alaska Fairbanks | 65,571 | 6,280 | 13,761 | 24,879 | 212 | 17,454 | 0 | 2,985 | 0 |
| 60 Univ of Med & Dent of N J | 64,229 | 0 | 0 | 0 | 0 | 64,229 | 0 | 0 | 0 |
| Total, 1st 60 insts. | 8,236,246 | 1,401,488 | 792,458 | 539,931 | 279,086 | 4,518,288 | 115,301 | 377,953 | 211,741 |
| 61 Florida State University | 62,933 | 965 | 13,839 | 7,996 | 3,027 | 7,866 | 3,166 | 6,785 | 19,289 |
| 62 Virginia Commonwealth Univ | 62,730 | 48 | 1,876 | 0 | 119 | 58,528 | 626 | 1,533 | 0 |
| 63 Wayne State University | 62,455 | 5,951 | 7,900 | 0 | 398 | 43,871 | 716 | 1,597 | 2,022 |
| 64 University of Kansas | 61,144 | 4,318 | 6,635 | 6,196 | 437 | 32,597 | 1,426 | 329 | 9,206 |
| 65 Univ of Cal Santa Barbara | 59,750 | 22,214 | 15,216 | 9,611 | 2,496 | 2,608 | 2,789 | 4,816 | 0 |
| 66 Arizona State University | 58,652 | 18,618 | 14,490 | 7,529 | 2,164 | 5,655 | 2,138 | 6,797 | 1,261 |
| 67 University of Oklahoma | 58,645 | 8,735 | 5,030 | 9,056 | 2,444 | 27,424 | 359 | 4,995 | 602 |
| 68 Mississippi State Univ | 58,492 | 12,433 | 1,644 | 1,318 | 112 | 36,357 | 0 | 3,350 | 3,278 |
| 69 University of New Mexico | 57,728 | 20,402 | 3,079 | 1,628 | 562 | 27,115 | 552 | 2,001 | 2,589 |
| 70 Univ of Cal Riverside | 54,892 | 0 | 4,044 | 1,519 | 654 | 47,431 | 191 | 1,053 | 0 |
| Total, 1st 70 insts. | 8,833,667 | 1,495,172 | 866,211 | 584,784 | 291,499 | 4,807,740 | 127,264 | 411,209 | 249,788 |
| 71 Kans St U - Ag & App Sci | 50,311 | 6,186 | 3,287 | 251 | 673 | 37,289 | 366 | 1,652 | 607 |
| 72 Temple University | 49,449 | 234 | 2,721 | 8 | 404 | 37,121 | 1,242 | 7,688 | 31 |
| 73 Univ of South Carolina | 47,477 | 6,974 | 5,710 | 9,617 | 1,994 | 15,119 | 2,261 | 5,343 | 459 |
| 74 U Tex Hlth Sci Ctr Houstn | 45,707 | 0 | 0 | 519 | 0 | 44,345 | 0 | 843 | 0 |
| 75 U Tex Hlth Sci Ctr S Anto | 45,663 | 0 | 0 | 0 | 0 | 45,663 | 0 | 0 | 0 |
| 76 West Virginia University | 45,542 | 5,381 | 1,437 | 6,314 | 10,452 | 20,625 | 143 | 1,170 | 20 |
| 77 U of VT & State Agr Coll | 45,162 | 996 | 1,025 | 426 | 252 | 41,009 | 1,246 | 20 | 188 |
| 78 Oregon Hlth Sciences Univ | 41,420 | 0 | 0 | 0 | 0 | 40,070 | 1,350 | 0 | 0 |
| 79 U Tex Med Brnch Galveston | 40,610 | 0 | 0 | 0 | 0 | 40,610 | 0 | 0 | 0 |
| 80 University of Delaware | 40,119 | 12,251 | 6,869 | 6,721 | 1,888 | 9,093 | 592 | 2,705 | 0 |
| Total, 1st 80 insts. | 9,285,127 | 1,527,194 | 887,260 | 608,640 | 307,162 | 5,138,684 | 134,464 | 430,630 | 251,093 |
| 81 U of Houston | 37,978 | 8,027 | 19,290 | 1,934 | 1,109 | 4,847 | 1,584 | 1,119 | 68 |
| 82 Univ of Ark Fayetteville | 36,963 | 7,059 | 3,496 | 130 | 1,235 | 22,032 | 459 | 2,062 | 490 |
| 83 Univ Serv Univ of Hlth Sc | 36,080 | 0 | 0 | 0 | 0 | 36,080 | 0 | 0 | 0 |
| 84 Univ of Rhode Island | 35,846 | 3,907 | 568 | 18,944 | 114 | 9,817 | 943 | 1,553 | 0 |
| 85 SUNY Hlth Sci Ctr - Syrcs | 35,193 | 0 | 0 | 0 | 0 | 35,193 | 0 | 0 | 0 |
| 86 University of Idaho | 34,936 | 6,719 | 1,848 | 2,006 | 0 | 22,172 | 24 | 1,848 | 319 |
| 87 Texas Tech University | 34,142 | 8,801 | 3,147 | 774 | 542 | 15,486 | 134 | 4,620 | 638 |
| 88 Univ of Central Florida | 30,618 | 4,220 | 7,693 | 7,084 | 706 | 398 | 205 | 453 | 9,859 |
| 89 Univ of P R-Mayaguez | 30,555 | 1,616 | 171 | 1,424 | 30 | 27,165 | 22 | 0 | 127 |
| 90 Univ Alabama Huntsville | 29,565 | 11,918 | 11,024 | 1,406 | 4,314 | 482 | 3 | 12 | 406 |
| Total, 1st 90 insts. | 9,627,003 | 1,579,461 | 934,497 | 642,342 | 315,212 | 5,312,356 | 137,838 | 442,297 | 263,000 |
| 91 Montana State University | 27,648 | 2,871 | 4,410 | 292 | 215 | 18,593 | 7 | 1,260 | 0 |
| 92 Univ of Cal Santa Cruz | 26,347 | 314 | 12,887 | 4,694 | 756 | 6,641 | 464 | 591 | 0 |
| 93 University of Oregon | 26,346 | 790 | 12,114 | 2,655 | 778 | 7,016 | 1,552 | 1,204 | 237 |
| 94 Univ of New Hampshire | 25,994 | 2,334 | 5,668 | 9,309 | 260 | 5,538 | 105 | 1,123 | 1,657 |
| 95 Southern Ill U-Carbondale | 25,873 | 4,193 | 1,153 | 895 | 2,335 | 12,853 | 503 | 1,411 | 2,530 |
| 96 Univ of Maine Orono | 23,605 | 2,925 | 891 | 4,350 | 43 | 13,779 | 294 | 1,323 | 0 |
| 97 Med Univ of So Carolina | 23,128 | 0 | 0 | 0 | 0 | 23,128 | 0 | 0 | 0 |
| 98 N Mex Inst Mining & Tech | 22,911 | 16,090 | 1,877 | 4,576 | 243 | 125 | 0 | 0 | 0 |
| 99 SUNY Hlth Sci Ctr - Brkln | 22,873 | 0 | 0 | 0 | 0 | 22,873 | 0 | 0 | 0 |
| 100 University of Wyoming | 22,831 | 1,910 | 2,132 | 3,046 | 737 | 12,216 | 282 | 809 | 1,699 |
| Total, 1st 100 insts. | 9,874,559 | 1,610,888 | 975,629 | 672,159 | 320,579 | 5,435,118 | 141,045 | 450,018 | 269,123 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-42. R&D expenditures at public universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 3 of 3

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|---------------------------------------|------------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 101 San Diego State Univ | 22,524 | 4,142 | 1,568 | 445 | 1,676 | 9,086 | 1,349 | 964 | 3,294 |
| 102 University of Mississippi | 22,071 | 2,486 | 4,091 | 0 | 5 | 14,649 | 385 | 455 | 0 |
| 103 SUNY at Albany | 22,034 | 0 | 2,303 | 8,881 | 914 | 2,928 | 2,797 | 4,211 | 0 |
| 104 The University of Alabama | 21,488 | 6,709 | 3,910 | 2,244 | 1,974 | 2,400 | 831 | 2,762 | 658 |
| 105 Univ of Nevada - Reno | 21,449 | 2,866 | 1,054 | 4,424 | 13 | 11,364 | 43 | 1,189 | 496 |
| 106 SUNY Col of Env Sci & For | 18,671 | 6,240 | 1,538 | 2,177 | 359 | 7,940 | 0 | 409 | 8 |
| 107 U of Neb Med Ctr at Omaha | 17,844 | 0 | 0 | 0 | 0 | 17,844 | 0 | 0 | 0 |
| 108 University of N Dakota | 17,498 | 8,271 | 53 | 2,882 | 0 | 4,655 | 15 | 861 | 761 |
| 109 US Naval Postgrad School | 17,391 | 5,575 | 2,477 | 3,558 | 1,644 | 0 | 0 | 2,748 | 1,389 |
| 110 Desert Research Institute | 16,852 | 0 | 0 | 14,118 | 0 | 1,054 | 0 | 1,680 | 0 |
| Total, 1st 110 insts. | 10,072,381 | 1,647,177 | 992,623 | 710,888 | 327,164 | 5,507,038 | 146,465 | 465,297 | 275,729 |
| 111 Michigan Tech University | 16,037 | 10,366 | 1,296 | 324 | 77 | 2,990 | 0 | 975 | 9 |
| 112 University of Louisville | 15,921 | 1,118 | 1,129 | 243 | 88 | 12,027 | 2 | 1,314 | 0 |
| 113 Florida A & M University | 15,847 | 1,485 | 2,080 | 0E | 293 | 7,539E | 0 | 4,450 | 0 |
| 114 U of MD Center For EES | 15,652 | 0 | 0 | 15,652 | 0 | 0 | 0 | 0 | 0 |
| 115 Univ of Wis-Milwaukee | 15,639 | 2,713 | 3,175 | 2,740 | 237 | 2,913 | 461 | 2,472 | 928 |
| 116 N J Inst of Technology | 15,225 | 4,510 | 2,71 | 4,922 | 2,086 | 0 | 0 | 241 | 3,195 |
| 117 Univ of Missouri Rolla | 14,285 | 9,207 | 2,792 | 497 | 490 | 296 | 14 | 16 | 973 |
| 118 Wright State University | 13,451 | 2,611 | 2,328 | 171 | 1,153 | 6,803 | 284 | 101 | 0 |
| 119 Ohio University | 12,982 | 5,766 | 1,661 | 141 | 28 | 4,921 | 365 | 100 | 0 |
| 120 CUNY City College | 12,973 | 2,762 | 5,423 | 259 | 280 | 3,390 | 257 | 162 | 440 |
| Total, 1st 120 insts. | 10,220,393 | 1,687,715 | 1,012,778 | 735,837 | 331,896 | 5,547,917 | 147,848 | 475,128 | 281,274 |
| 121 North Dakota State Univ | 12,468 | 1,310 | 1,448 | 39 | 317 | 7,865 | 280 | 895 | 314 |
| 122 Univ of Texas at Dallas | 12,075 | 1,172 | 5,314 | 1,467 | 848 | 2,529 | 218 | 389 | 138 |
| 123 Memphis State University | 12,073 | 1,100 | 312 | 2,946 | 355 | 2,465 | 3,139 | 1,756 | 0 |
| 124 Medical Col of Georgia | 12,052 | 0 | 0 | 0 | 0 | 12,052 | 0 | 0 | 0 |
| 125 U of Arkansas Med Sci Cam | 11,898 | 0 | 0 | 0 | 0 | 11,898 | 0 | 0 | 0 |
| 126 University of Lowell | 11,291 | 3,119 | 2,737 | 1,419 | 900 | 1,793 | 0 | 14 | 1,309 |
| 127 Univ of South Alabama | 11,105 | 47 | 32 | 354 | 34 | 10,229 | 206 | 94 | 49 |
| 128 Colorado School of Mines | 10,943 | 6,097 | 2,283 | 601 | 724 | 0 | 0 | 192 | 1,046 |
| 129 SUNY at Binghamton | 10,680 | 733 | 1,820 | 619 | 548 | 1,918 | 2,186 | 2,856 | 0 |
| 130 Old Dominion U Res Fdn | 10,579 | 3,966 | 1,272 | 1,536 | 1,210 | 2,533 | 11 | 51 | 0 |
| Total, 1st 130 insts. | 10,335,557 | 1,705,259 | 1,028,056 | 744,818 | 336,832 | 5,601,199 | 153,888 | 481,375 | 284,130 |
| 131 University of Akron | 10,372 | 4,435 | 4,748 | 8 | 347 | 169 | 196 | 469 | 0 |
| 132 San Jose State University | 10,086 | 2,591 | 1,064 | 3,805 | 234 | 472 | 1,910 | 10 | 0 |
| 133 Univ of North Texas | 9,741 | 496 | 2,042 | 1,425 | 866 | 2,213 | 117 | 1,366 | 1,216 |
| 134 Tenn Technological Univ | 9,631 | 7,832 | 540 | 55 | 60 | 942 | 5 | 47 | 150 |
| 135 College of William & Mary | 9,572 | 0 | 3,157 | 4,574 | 1,060 | 359 | 243 | 179 | 0 |
| 136 South Dakota State Univ | 9,511 | 794 | 176 | 352 | 0 | 7,699 | 0 | 490 | 0 |
| 137 Georgia State University | 8,942 | 0 | 2,323 | 347 | 1,004 | 1,933 | 1,626 | 1,292 | 417 |
| 138 Northern Illinois Univ | 8,930 | 4221 | 1,943I | 545I | 674I | 2,292I | 285I | 2,769I | 0I |
| 139 Cleveland State Univ | 8,699 | 3,950 | 716 | 13 | 25 | 63 | 39 | 3,893 | 0 |
| 140 NC Ag & Tech State Univ | 8,657 | 4,355 | 402 | 0 | 711 | 2,910 | 127 | 122 | 30 |
| Total, 1st 140 insts. | 10,429,698 | 1,730,134 | 1,045,167 | 755,942 | 341,813 | 5,620,251 | 158,436 | 492,012 | 285,943 |
| 141 Univ of Southwestern LA | 8,319 | 1,736 | 552 | 103 | 2,933 | 1,669 | 87 | 600 | 639 |
| 142 Univ of Missouri Kan City | 8,310 | 0 | 520 | 69 | 1,439 | 5,420 | 6 | 528 | 328 |
| 143 George Mason University | 8,011 | 3,550 | 104 | 20 | 691 | 496 | 223 | 2,926 | 1 |
| 144 University of Montana | 7,332 | 310 | 39 | 120 | 23 | 4,798 | 15 | 1,404 | 623 |
| 145 Kent State University | 7,172 | 77 | 3,375 | 198 | 1,415 | 1,370 | 234 | 368 | 135 |
| 146 Med Col of Ohio at Toledo | 7,159 | 0 | 0 | 0 | 0 | 7,159 | 0 | 0 | 0 |
| 147 Alabama A & M University | 7,010 | 89 | 3,236 | 0 | 0 | 3,512 | 0 | 173 | 0 |
| 148 CUNY Hunter College | 6,928 | 0 | 2,657 | 338 | 108 | 2,677 | 845 | 249 | 54 |
| 149 Univ of Texas at El Paso | 6,889 | 3,399 | 918 | 688 | 412 | 978 | 220 | 274 | 0 |
| 150 Univ of P R-Med Sci Cmpus | 6,293 | 0 | 0 | 0 | 0 | 6,293 | 0 | 0 | 0 |
| Total, 1st 150 insts. | 10,503,121 | 1,739,295 | 1,056,568 | 757,478 | 348,834 | 5,654,623 | 160,066 | 498,534 | 287,723 |
| Total, all other sampled insts. | 199,314 | 31,833 | 31,687 | 13,029 | 9,679 | 82,928 | 7,011 | 16,865 | 6,282 |
| Estimated total non-sampled insts. | 96,947 | 22,742 | 12,828 | 14,979 | 5,496 | 24,194 | 7,751 | 8,091 | 866 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-43. Federally financed R&D expenditures at public universities and colleges, by science/engineering field: fiscal year 1990

[Dollars in thousands]

Page 1 of 2

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|-------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 5,608,210 | 895,062 | 720,449 | 454,924 | 190,860 | 2,939,469 | 108,302 | 166,284 | 132,861 |
| 1 University of Washington | 203,353 | 11,359 | 12,548 | 20,274 | 8,549 | 125,284 | 4,664 | 2,919 | 17,756 |
| 2 Univ of Cal San Diego | 182,555 | 5,304 | 26,689 | 53,102 | 4,463 | 90,706 | 1,822 | 4,669 | 0 |
| 3 University of Michigan | 180,456 | 31,447 | 10,987 | 13,150 | 4,686 | 103,528 | 2,996 | 12,745 | 917 |
| 4 Univ of Wis-Madison | 178,862 | 24,474 | 22,378 | 15,865 | 5,647 | 93,184 | 6,876 | 10,311 | 127 |
| 5 Univ of Cal San Francisco | 175,257 | 0 | 0 | 0 | 0 | 175,257 | 0 | 0 | 0 |
| 6 Univ of Cal Los Angeles | 164,442 | 16,873 | 21,485 | 8,654 | 5,941 | 104,102 | 4,782 | 2,605 | 0 |
| 7 University of Minnesota | 143,810 | 10,781 | 12,563 | 2,440 | 12,553 | 97,634 | 3,962 | 3,877 | 0 |
| 8 Pennsylvania State Univ | 136,656 | 74,737 | 11,153 | 6,313 | 2,209 | 35,704 | 2,040 | 2,996 | 1,504 |
| 9 Univ of Cal Berkeley | 131,717 | 29,399 | 42,182 | 3,954 | 3,899 | 41,857 | 3,685 | 6,224 | 517 |
| 10 Univ of Ill Urbana | 117,170 | 42,064 | 17,960 | 5,876 | 8,887 | 22,241 | 3,447 | 2,922 | 13,773 |
| Total, 1st 10 insts. | 1,614,278 | 246,438 | 177,945 | 129,628 | 56,834 | 889,497 | 34,274 | 45,068 | 34,594 |
| 11 Univ. of Colorado | 116,394 | 13,704 | 18,187 | 20,252 | 3,414 | 54,616 | 3,549 | 2,672 | 0 |
| 12 Univ of Texas at Austin | 109,593 | 26,031 | 22,478 | 6,644 | 2,497 | 10,153 | 1,678 | 3,269 | 36,843 |
| 13 Georgia Institute of Tech | 94,842 | 65,901 | 8,635 | 5,784 | 9,393 | 1,214 | 956 | 2,959 | 0 |
| 14 Texas A & M University | 93,001 | 13,388 | 8,021 | 45,980 | 2,943 | 20,262 | 310 | 1,639 | 458 |
| 15 University of Arizona | 92,920 | 6,989 | 32,929 | 6,644 | 3,110 | 39,626 | 469 | 1,687 | 1,466 |
| 16 Univ of NC at Chapel Hill | 92,468 | 0 | 5,400 | 2,614 | 5,420 | 72,374 | 939 | 5,721 | 0 |
| 17 University of Pittsburgh | 90,700 | 2,967 | 10,141 | 236 | 1,136 | 72,720 | 1,456 | 1,264 | 780 |
| 18 University of Iowa | 79,046 | 4,412 | 14,360 | 138 | 503 | 58,187 | 542 | 904 | 0 |
| 19 Ohio State University | 78,878 | 13,761 | 8,063 | 1,993 | 2,141 | 42,665 | 135 | 8,913 | 1,187 |
| 20 Univ of Cal Davis | 77,424 | 4,149 | 6,909 | 996 | 426 | 64,036 | 434 | 474 | 0 |
| Total, 1st 20 insts. | 2,539,544 | 397,760 | 313,068 | 220,909 | 87,817 | 1,325,350 | 44,742 | 74,570 | 75,328 |
| 21 Univ Alabama Birmingham | 74,486 | 1,023 | 325 | 0 | 198 | 72,524 | 378 | 38 | 0 |
| 22 SUNY at Buffalo | 66,876 | 7,900 | 4,129 | 565 | 2,235 | 49,673 | 912 | 1,139 | 323 |
| 23 Univ of MD College Park | 66,410 | 16,336 | 30,835 | 4,593 | 4,591 | 6,287 | 1,194 | 2,574 | 0 |
| 24 University of Florida | 64,614 | 14,766 | 7,068 | 1,940 | 2,423 | 36,453 | 995 | 663 | 306 |
| 25 Purdue University | 64,464 | 18,301 | 10,897 | 1,331 | 4,195 | 25,697 | 1,183 | 1,454 | 1,406 |
| 26 University of Utah | 62,297 | 7,872 | 6,099 | 1,978 | 2,771 | 42,728 | 488 | 361 | 0 |
| 27 Utah State University | 58,965 | 38,495 | 3,039 | 4,998 | 151 | 10,194 | 307 | 209 | 1,572 |
| 28 University of Virginia | 58,801 | 9,776 | 8,134 | 4,670 | 3,091 | 30,665 | 2,064 | 251 | 150 |
| 29 Univ. Of Tennessee System | 58,648 | 19,355 | 6,408 | 745 | 1,787 | 28,510 | 338 | 1,491 | 14 |
| 30 Michigan State University | 58,221 | 4,922 | 14,485 | 740 | 374 | 30,013 | 1,748 | 3,089 | 2,850 |
| Total, 1st 30 insts. | 3,173,326 | 536,506 | 404,487 | 242,469 | 109,633 | 1,658,094 | 54,349 | 85,839 | 81,949 |
| 31 Indiana University | 57,155 | 42 | 17,818 | 322 | 2,125 | 33,223 | 2,174 | 997 | 454 |
| 32 Univ of Massachusetts | 56,018 | 4,752 | 8,432 | 1,200 | 7,591 | 29,848 | 2,463 | 1,242 | 490 |
| 33 SUNY at Stony Brook | 55,911 | 2,014 | 15,165 | 6,018 | 2,562 | 27,702 | 849 | 1,521 | 80 |
| 34 UT SW Medical Ctr-Dallas | 54,965 | 0 | 0 | 0 | 0 | 54,965 | 0 | 0 | 0 |
| 35 New Mexico State Univ | 54,688 | 32,984 | 2,157 | 1,797 | 8,775 | 8,463 | 250 | 262 | 0 |
| 36 Univ of Cal Irvine | 52,492 | 2,608 | 11,110 | 0 | 3,353 | 34,182 | 0 | 1,229 | 10 |
| 37 Colorado State University | 50,744 | 11,768 | 3,735 | 7,414 | 731 | 22,459 | 1,556 | 3,074 | 7 |
| 38 Oregon State University | 50,544 | 5,445 | 2,183 | 16,568 | 737 | 21,948 | 63 | 693 | 2,907 |
| 39 Louisiana State Univ | 48,802 | 8,345 | 4,912 | 5,975 | 326 | 28,599 | 390 | 234 | 21 |
| 40 Univ of Cal Santa Barbara | 47,873 | 18,807 | 13,336 | 7,029 | 1,888 | 1,843 | 2,075 | 2,895 | 0 |
| Total, 1st 40 insts. | 3,702,518 | 623,271 | 483,335 | 288,792 | 137,721 | 1,921,326 | 64,169 | 97,986 | 85,918 |
| 41 VA Polytech Inst & St U. | 45,949 | 22,304 | 4,648 | 1,580 | 1,518 | 13,035 | 664 | 2,200 | 0 |
| 42 University of Cincinnati | 44,966 | 6,903 | 3,007 | 86 | 345 | 32,820 | 222 | 121 | 1,462 |
| 43 Univ of Ill Chicago | 43,968 | 2,335 | 5,607 | 265 | 1,370 | 32,058 | 163 | 817 | 1,353 |
| 44 University of Georgia | 43,864 | 395 | 2,492 | 1,826 | 2,079 | 34,431 | 1,137 | 1,504 | 0 |
| 45 N C State Univ at Raleigh | 43,787 | 15,077 | 3,797 | 2,625 | 2,083 | 19,244 | 128 | 833 | 0 |
| 46 University of Connecticut | 43,477 | 3,450 | 1,159 | 4,341 | 545 | 32,658 | 830 | 339 | 155 |
| 47 Univ of Hawaii-Manoa | 42,665 | 714 | 12,905 | 15,393 | 889 | 8,474 | 241 | 524 | 3,525 |
| 48 Virginia Commonwealth Univ | 41,606 | 35 | 1,299 | 0 | 99 | 39,440 | 489 | 244 | 0 |
| 49 Rutgers the St Univ of NJ | 40,977 | 4,262 | 9,765 | 710 | 6,389 | 12,821 | 2,593 | 4,437 | 0 |
| 50 Univ of MD Balt Prof Sch | 38,841 | 0 | 0 | 0 | 0 | 38,841 | 0 | 0 | 0 |
| Total, 1st 50 insts. | 4,132,618 | 678,746 | 528,014 | 315,618 | 153,038 | 2,185,148 | 70,636 | 109,005 | 92,413 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-43. Federally financed R&D expenditures at public universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|---------------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 51 Iowa St U of Sci & Tech | 34,043 | 11,496 | 2,157 | 218 | 1,545 | 16,825 | 10 | 1,792 | 0 |
| 52 Univ of Med & Dent of N J | 33,185 | 0 | 0 | 0 | 0 | 33,185 | 0 | 0 | 0 |
| 53 Florida State University | 32,927 | 54 | 6,799 | 4,183 | 824 | 3,224 | 1,449 | 257 | 16,137 |
| 54 Univ of Alaska Fairbanks | 31,896 | 2,662 | 7,950 | 14,079 | 133 | 6,324 | 0 | 748 | 0 |
| 55 U of VT & State Agr Coll | 30,555 | 504 | 662 | 164 | 182 | 28,017 | 1,002 | 5 | 19 |
| 56 Univ of South Florida | 30,481 | 18,910 | 1,459 | 2,785 | 134 | 6,250 | 652 | 288 | 0 |
| 57 University of Kentucky | 29,612 | 2,821 | 1,453 | 93 | 504 | 21,041 | 217 | 744 | 2,739 |
| 58 U Tex Hlth Sci Ctr S Anto | 29,431 | 0 | 0 | 0 | 0 | 29,431 | 0 | 0 | 0 |
| 59 U Tex Hlth Sci Ctr Houstn | 29,017 | 0 | 0 | 400 | 0 | 27,835 | 0 | 782 | 0 |
| 60 UT MD Anderson Cancer Ctr | 28,889 | 0 | 1,860 | 0 | 1,047 | 25,982 | 0 | 0 | 0 |
| Total, 1st 60 insts. | 4,442,654 | 715,193 | 550,354 | 337,540 | 157,407 | 2,383,262 | 73,969 | 113,621 | 111,308 |
| 61 Wayne State University | 28,488 | 2,121 | 2,304 | 0 | 109 | 23,079 | 465 | 410 | 0 |
| 62 Oregon Hlth Sciences Univ | 27,241 | 01 | 01 | 01 | 01 | 26,154 | 1,087 | 01 | 01 |
| 63 Washington State Univ | 26,884 | 2,037 | 1,849 | 527 | 433 | 18,048 | 155 | 1,942 | 1,893 |
| 64 University of Kansas | 26,786 | 2,478 | 2,788 | 576 | 297 | 15,184 | 764 | 15 | 4,684 |
| 65 Arizona State University | 26,590 | 4,933 | 6,697 | 7,073 | 1,022 | 3,228 | 1,552 | 2,076 | 9 |
| 66 Temple University | 26,164 | 95 | 1,177 | 0 | 179 | 19,551 | 565 | 4,597 | 0 |
| 67 University of New Mexico | 25,449 | 10,689 | 1,989 | 802 | 118 | 10,373 | 418 | 785 | 275 |
| 68 Univ of Missouri Columbia | 24,422 | 1,624 | 970 | 409 | 184 | 19,360 | 492 | 1,402 | 1 |
| 69 Univ of Nebraska-Lincoln | 22,686 | 1,337 | 3,008 | 679 | 489 | 16,259 | 119 | 754 | 41 |
| 70 U Tex Med Brnch Galveston | 21,693 | 0 | 0 | 0 | 0 | 21,693 | 0 | 0 | 0 |
| Total, 1st 70 insts. | 4,699,057 | 740,507 | 571,136 | 347,606 | 160,238 | 2,556,171 | 79,586 | 125,602 | 118,211 |
| 71 Mississippi State Univ | 21,426 | 8,199 | 1,114 | 575 | 112 | 9,910 | 0 | 1,151 | 365 |
| 72 Univ Alabama Huntsville | 21,355 | 8,108 | 9,339 | 914 | 2,567 | 4,227 | 0 | 0 | 0 |
| 73 Univ of South Carolina | 20,587 | 2,308 | 3,936 | 2,827 | 563 | 8,328 | 1,123 | 1,415 | 87 |
| 74 Univ of Rhode Island | 20,511 | 1,689 | 3,358 | 14,239 | 73 | 2,334 | 806 | 1,012 | 0 |
| 75 University of Oregon | 20,151 | 722 | 8,895 | 2,206 | 684 | 2,803 | 1,274 | 567 | 0 |
| 76 West Virginia University | 18,451 | 3,264 | 994 | 5,106 | 600 | 8,260 | 89 | 124 | 14 |
| 77 Oklahoma State University | 17,744 | 6,931 | 2,485 | 116 | 323 | 6,754 | 75 | 1,035 | 25 |
| 78 University of Delaware | 17,588 | 4,305 | 4,325 | 3,786 | 1,448 | 2,472 | 385 | 867 | 0 |
| 79 U of Houston | 17,575 | 2,754 | 9,692 | 321 | 651 | 2,873 | 907 | 316 | 61 |
| 80 US Naval Postgrad School | 17,333 | 5,575 | 2,443 | 3,543 | 1,635 | 0 | 0 | 2,748 | 1,389 |
| Total, 1st 80 insts. | 4,891,778 | 784,362 | 614,717 | 381,239 | 168,894 | 2,603,332 | 84,245 | 134,837 | 120,152 |
| 81 University of Oklahoma | 16,871 | 2,009 | 1,736 | 2,399 | 754 | 9,289 | 104 | 576 | 4 |
| 82 Univ of Cal Riverside | 15,806 | 0 | 3,848 | 892 | 37 | 10,499 | 113 | 130 | 0 |
| 83 Kans St U - Ag & App Sci | 15,651 | 1,921 | 2,857 | 167 | 330 | 9,392 | 157 | 488 | 339 |
| 84 University of Mississippi | 14,973 | 1,875 | 3,642 | 0 | 0 | 8,947 | 283 | 226 | 0 |
| 85 San Diego State Univ | 14,647 | 3,318 | 1,290 | 177 | 1,102 | 6,263 | 1,087 | 599 | 811 |
| 86 Auburn University | 14,629 | 5,017 | 1,024 | 93 | 432 | 6,760 | 28 | 108 | 1,167 |
| 87 SUNY Hlth Sci Ctr - Brkln | 14,574 | 0 | 0 | 0 | 0 | 14,574 | 0 | 0 | 0 |
| 88 SUNY at Albany | 14,497 | 0 | 1,578 | 4,953 | 634 | 1,936 | 2,321 | 3,075 | 0 |
| 89 Univ of New Hampshire | 14,455 | 847 | 4,738 | 5,224 | 163 | 2,397 | 105 | 867 | 114 |
| 90 University of N Dakota | 14,398 | 6,793 | 34 | 2,704 | 0 | 4,127 | 9 | 399 | 332 |
| Total, 1st 90 insts. | 5,042,279 | 806,142 | 635,464 | 397,848 | 172,633 | 2,677,516 | 88,452 | 141,305 | 122,919 |
| 91 Univ of P R-Mayaguez | 14,337 | 1,063 | 171 | 1,251 | 21 | 11,759 | 0 | 0 | 72 |
| 92 Clemson University | 14,221 | 4,703 | 1,089 | 46 | 1,092 | 5,838 | 34 | 1,419 | 0 |
| 93 Univ of Cal Santa Cruz | 13,855 | 0 | 5,810 | 2,725 | 480 | 4,308 | 401 | 131 | 0 |
| 94 University of Idaho | 13,812 | 4,101 | 885 | 998 | 0 | 7,246 | 2 | 488 | 92 |
| 95 Florida A & M University | 13,110 | 1,485 | 1,929 | 0E | 163 | 6,891E | 0 | 2,642 | 0 |
| 96 University of Wyoming | 12,207 | 1,382 | 1,859 | 1,825 | 641 | 6,001 | 268 | 147 | 84 |
| 97 Univ of Nevada - Reno | 11,922 | 1,870 | 916 | 2,467 | 13 | 6,524 | 17 | 115 | 0 |
| 98 Unif Serv Univ of Hlth Sc | 11,288 | 0 | 0 | 0 | 0 | 11,288 | 0 | 0 | 0 |
| 99 Med Univ of So Carolina | 10,910 | 0 | 0 | 0 | 0 | 10,910 | 0 | 0 | 0 |
| 100 Univ of Ark Fayetteville | 10,831 | 2,193 | 1,286 | 7 | 213 | 6,754 | 7 | 323 | 48 |
| Total, 1st 100 insts. | 5,168,772 | 822,939 | 649,409 | 407,167 | 175,256 | 2,755,035 | 89,181 | 146,570 | 123,215 |
| Total, all other sampled insts. | 395,565 | 63,350 | 64,576 | 37,767 | 13,940 | 176,049 | 12,705 | 17,532 | 9,646 |
| Estimated total non-sampled insts. | 43,873 | 8,773 | 6,464 | 9,990 | 1,664 | 8,385 | 6,416 | 2,182 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

127

BEST COPY AVAILABLE

Table B-44. R&D expenditures at private universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|----------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 5,525,227 | 887,881 | 680,024 | 261,813 | 359,911 | 3,001,728 | 84,726 | 178,685 | 70,459 |
| 1 Johns Hopkins Univ | 668,915 | 204,793 | 93,344 | 41,412 | 97,042 | 208,607 | 1,368 | 10,767 | 11,582 |
| 2 Mass Inst of Technology | 311,767 | 127,004 | 98,119 | 12,247 | 14,697 | 37,711 | 7,856 | 4,645 | 9,488 |
| 3 Stanford University | 305,700 | 83,694 | 53,844 | 5,645 | 16,642 | 138,546 | 4,597 | 2,932 | 0 |
| 4 Cornell University | 300,144 | 39,663 | 44,887 | 6,215 | 27,146 | 160,595 | 2,909 | 12,049 | 680 |
| 5 Harvard University | 220,812 | 998 | 28,340 | 6,503 | 3,909 | 128,632 | 2,864 | 35,668 | 3,006 |
| 6 Univ of Pennsylvania | 189,390 | 10,832 | 15,494 | 1,108 | 8,983 | 132,599 | 1,546 | 14,956 | 4,872 |
| 7 Columbia Univ Main Div | 182,769 | 17,647 | 16,361 | 24,529 | 4,462 | 113,392 | 1,261 | 5,117 | 0 |
| 8 Yale University | 180,706 | 6,732 | 15,391 | 2,329 | 7,320 | 143,093 | 3,181 | 2,660 | 5 |
| 9 Univ of Southern Cal | 169,102 | 27,713 | 7,463 | 7,207 | 31,932 | 83,856 | 7,527 | 3,399 | 0 |
| 10 Baylor Col of Medicine | 155,122 | 0 | 0 | 0 | 0 | 155,122 | 0 | 0 | 0 |
| Total, 1st 10 insts. | 2,684,427 | 519,076 | 373,243 | 105,995 | 212,133 | 1,316,043 | 32,109 | 96,193 | 29,635 |
| 11 Washington University | 151,249 | 2,695 | 6,554 | 1,999 | 5,308 | 133,337 | 1,036 | 320 | 0 |
| 12 Duke University | 140,708 | 6,492 | 9,085 | 2,520 | 2,696 | 111,309 | 1,558 | 7,048 | 0 |
| 13 Northwestern University | 131,979 | 17,407 | 11,770 | 959 | 1,844 | 74,268 | 981 | 1,809 | 22,941 |
| 14 University of Rochester | 129,011 | 22,858 | 13,329 | 294 | 2,079 | 85,078 | 4,731 | 500 | 142 |
| 15 University of Chicago | 117,955 | 0 | 26,088 | 4,089 | 2,922 | 79,769 | 1,008 | 4,079 | 0 |
| 16 New York University | 108,511 | 0 | 3,110 | 139 | 10,968 | 84,854 | 3,605 | 4,532 | 1,303 |
| 17 California Inst of Tech | 105,730 | 17,363 | 42,034 | 15,957 | 4,196 | 24,857 | 0 | 471 | 852 |
| 18 Carnegie-Mellon Univ | 100,501 | 24,000 | 7,203 | 1,886 | 46,574 | 11,400 | 4,458 | 3,412 | 1,268 |
| 19 University of Miami | 94,344 | 1,911 | 1,406 | 18,626 | 436 | 68,395 | 1,419 | 1,808 | 543 |
| 20 Case Western Reserve Univ | 93,384 | 19,049E | 10,022E | 244E | 207E | 60,411E | 263E | 3,188E | 0E |
| Total, 1st 20 insts. | 3,857,499 | 630,851 | 503,844 | 152,708 | 289,363 | 2,049,721 | 51,168 | 123,360 | 56,484 |
| 21 Princeton University | 91,514 | 23,048 | 22,819 | 6,270 | 7,061 | 17,597 | 5,015 | 9,704 | 0 |
| 22 Yeshiva University | 83,968 | 0 | 0 | 0 | 0 | 83,968 | 0 | 0 | 0 |
| 23 Emory University | 82,774 | 0 | 4,631 | 6 | 272 | 74,880 | 520 | 2,465 | 0 |
| 24 Rockefeller University | 75,245 | 0 | 11,661 | 0 | 866 | 62,718 | 0 | 0 | 0 |
| 25 Vanderbilt University | 75,062 | 7,287 | 6,681 | 119 | 424 | 57,246 | 1,744 | 1,561 | 0 |
| 26 Boston University | 73,655 | 3,723 | 8,956 | 1,115 | 1,063 | 54,067 | 482 | 1,636 | 3,613 |
| 27 Woods Hole Oceanographic Inst | 71,747 | 11,343 | 0 | 60,404 | 0 | 0 | 0 | 0 | 0 |
| 28 CUNY Mt Sinai Sch of Med | 63,752 | 0 | 0 | 0 | 0 | 63,752 | 0 | 0 | 0 |
| 29 Tulane University | 56,407 | 2,587 | 1,043 | 206 | 704 | 46,411 | 347 | 3,840 | 1,269 |
| 30 Georgetown University | 50,867 | 0 | 3,998 | 388 | 1,251 | 41,120 | 70 | 3,589 | 651 |
| Total, 1st 30 insts. | 4,582,490 | 678,839 | 563,633 | 220,216 | 301,004 | 2,551,480 | 59,346 | 145,955 | 62,017 |
| 31 Rensselaer Polytech Inst | 47,363 | 33,993 | 6,263 | 1,189 | 3,788 | 1,326 | 134 | 293 | 377 |
| 32 Tufts University | 47,009 | 2,117 | 1,383 | 4,148 | 174 | 37,300 | 854 | 1,033 | 0 |
| 33 Brown University | 46,763 | 7,156 | 6,162 | 4,669 | 9,289 | 17,654 | 1,550 | 283 | 0 |
| 34 Dartmouth College | 43,737 | 5,401E | 2,497E | 926E | 459E | 33,439E | 201E | 527E | 287E |
| 35 Wake Forest University | 39,654 | 0 | 603 | 0 | 150 | 38,636 | 41 | 6 | 218 |
| 36 University of Dayton | 36,177 | 30,722 | 1,343 | 70 | 1,127 | 344 | 2,453 | 118 | 0 |
| 37 Medical College of Wis | 34,622 | 0 | 0 | 0 | 0 | 34,622 | 0 | 0 | 0 |
| 38 Syracuse University | 33,811 | 7,560 | 5,968 | 1,347 | 10,647 | 4,619 | 486 | 3,183 | 1 |
| 39 George Washington Univ | 32,372 | 5,898 | 955 | 35 | 5,623 | 19,240 | 165 | 402 | 54 |
| 40 Thomas Jefferson Univ | 30,969 | 0 | 0 | 0 | 0 | 30,969 | 0 | 0 | 0 |
| Total, 1st 40 insts. | 4,974,967 | 771,686 | 588,807 | 232,600 | 332,261 | 2,769,629 | 65,230 | 151,800 | 62,954 |
| 41 Brandeis University | 30,881 | 0 | 3,339 | 0 | 954 | 14,303 | 1,224 | 11,061 | 0 |
| 42 Lehigh University | 27,255 | 19,596 | 5,238 | 359 | 568 | 938 | 282 | 274 | 0 |
| 43 Rice University | 26,267 | 4,703 | 8,470 | 2,849 | 6,718 | 2,917 | 435 | 175 | 0 |
| 44 Rush University | 21,284 | 0 | 0 | 0 | 0 | 20,363 | 921 | 0 | 0 |
| 45 Drexel University | 20,079 | 12,835 | 3,061 | 828 | 997 | 948 | 210 | 1,200 | 0 |
| 46 University of Notre Dame | 19,373 | 4,630 | 10,735 | 47 | 443 | 3,028 | 150 | 70 | 270 |
| 47 The Medical Col of Penna | 18,643 | 0 | 0 | 0 | 0 | 18,643 | 0 | 0 | 0 |
| 48 Howard University | 17,382 | 2,117 | 3,702 | 148 | 391 | 10,259 | 741 | 1,043 | 0 |
| 49 St Louis University | 17,157 | 0 | 180 | 715 | 47 | 16,083 | 0 | 4 | 128 |
| 50 Northeastern University | 14,347 | 5,227 | 3,291 | 0 | 1,177 | 3,372 | 618 | 400 | 262 |
| Total, 1st 50 insts. | 5,187,635 | 820,794 | 626,823 | 237,546 | 343,204 | 2,860,483 | 69,144 | 166,027 | 63,614 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-44. R&D expenditures at private universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|---------------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 51 Southern Methodist Univ | 13,600E | 1,509I | 1,138I | 7,011I | 1,723I | 743I | 170I | 836I | 470I |
| 52 Hahnemann University | 13,595 | 0 | 0 | 0 | 0 | 12,134 | 1,461 | 0 | 0 |
| 53 New York Medical College | 13,244 | 0 | 0 | 0 | 0 | 13,244 | 0 | 0 | 0 |
| 54 Loyola Univ - Chicago | 12,260 | 0 | 286 | 0 | 102 | 10,236 | 944 | 689 | 3 |
| 55 Brigham Young University | 11,608 | 4,718 | 2,785 | 90 | 95 | 1,788 | 1 | 392 | 1,739 |
| 56 Polytechnic University | 10,919 | 7,864 | 2,614 | 0 | 49 | 0 | 0 | 39 | 353 |
| 57 Eastern VA Medical School | 10,490 | 0 | 0 | 0 | 0 | 10,496 | 0 | 0 | 0 |
| 58 University of Denver | 10,102 | 5,371 | 3,087 | 0 | 63 | 362 | 1,043 | 176 | 0 |
| 59 Albany Med Ctr Grad Sch | 9,431 | 0 | 0 | 0 | 0 | 9,431 | 0 | 0 | 0 |
| 60 Oregon Grad Inst Sci/Tech | 9,262 | 1,641 | 3,784 | 2,165 | 1,672 | 0 | 0 | 0 | 0 |
| Total, 1st 60 insts. | 5,302,152 | 841,897 | 640,517 | 246,812 | 346,908 | 2,918,917 | 72,763 | 168,159 | 66,179 |
| 61 Creighton University | 8,929 | 0 | 0 | 0 | 0 | 8,929 | 0 | 0 | 0 |
| 62 Clarkson University | 8,392 | 5,381 | 2,120 | 0 | 416 | 334 | 8 | 0 | 133 |
| 63 Boston College | 8,052 | 0 | 3,094 | 394 | 3,649 | 500 | 69 | 346 | 0 |
| 64 Loma Linda University | 7,547 | 0 | 0 | 0 | 0 | 7,461 | 0 | 86 | 0 |
| 65 Catholic Univ of America | 7,398 | 1,586 | 4,305 | 0 | 1 | 701 | 586 | 219 | 0 |
| 66 Florida Inst of Tech | 7,003 | 1,633 | 1,050 | 1,544 | 143 | 1,287 | 95 | 8 | 1,243 |
| 67 Illinois Inst of Tech | 6,793 | 4,725 | 751 | 670 | 328 | 256 | 63 | 0 | 0 |
| 68 Meharry Medical College | 6,663 | 0 | 0 | 0 | 0 | 6,663 | 0 | 0 | 0 |
| 69 Stevens Institute of Tech | 6,146 | 5,226 | 920 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 Morehouse School of Med | 5,891 | 0I | 0I | 0I | 0I | 5,891I | 0I | 0I | 0I |
| Total, 1st 70 insts. | 5,374,966 | 860,448 | 652,757 | 249,420 | 351,445 | 2,950,939 | 73,584 | 168,818 | 67,555 |
| 71 Inst Paper Sci and Tech | 5,761 | 3,240 | 1,551 | 0 | 370 | 600 | 0 | 0 | 0 |
| 72 Union College (NY) | 5,459 | 1,414 | 970 | 206 | 654 | 706 | 303 | 1,206 | 0 |
| 73 Tuskegee University | 5,089 | 705 | 304 | 0 | 0 | 3,995 | 0 | 29 | 56 |
| 74 U Hlth Sci/Chgo Med Sch | 4,695 | 0 | 0 | 0 | 0 | 4,695 | 0 | 0 | 0 |
| 75 Worcester Poly Institute | 4,683 | 3,082 | 324 | 0 | 327 | 710 | 0 | 240 | 0 |
| 76 Mercer University | 4,656 | 4,154 | 128 | 0 | 0 | 374 | 0 | 0 | 0 |
| 77 University of Tulsa | 4,325 | 2,687 | 177 | 167 | 416 | 688 | 125 | 65 | 0 |
| 78 American University | 4,127 | 0 | 1,145 | 0 | 67 | 1,085 | 154 | 1,676 | 0 |
| 79 Alfred University | 4,067 | 4,067 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80 Wesleyan University | 4,021 | 0I | 1,526I | 43I | 648I | 1,667I | 102I | 35I | 0I |
| Total, 1st 80 insts. | 5,421,849 | 879,797 | 658,882 | 249,836 | 353,927 | 2,965,459 | 74,268 | 172,069 | 67,611 |
| 81 Marquette University | 3,262 | 1,040 | 705 | 0 | 190 | 1,133 | 6 | 39 | 149 |
| 82 Fairleigh Dickinson Univ | 3,183 | 79 | 0 | 2,297 | 26 | 181 | 524 | 76 | 0 |
| 83 Chas R Drew U of Med & Sc | 3,098I | 0I | 0I | 0I | 0I | 2,438I | 0I | 660I | 0I |
| 84 New York Inst Technology | 3,087 | 743 | 286 | 0 | 1,486 | 572 | 0 | 0 | 0 |
| 85 Texas Col of Osteo Med | 2,767 | 0 | 0 | 0 | 0 | 2,767 | 0 | 0 | 0 |
| 86 Fordham University | 2,501 | 0 | 209 | 1 | 66 | 707 | 63 | 1,455 | 0 |
| 87 Hampton University | 2,307 | 174 | 1,854 | 0 | 279 | 0 | 0 | 0 | 0 |
| 88 Institute of Textile Tech | 1,921 | 1,334 | 259 | 105 | 223 | 0 | 0 | 0 | 0 |
| 89 Xavier University of LA | 1,902 | 0 | 418 | 0 | 0 | 1,484 | 0 | 0 | 0 |
| 90 Bryn Mawr College | 1,854 | 0 | 456 | 292 | 105 | 368 | 156 | 477 | 0 |
| Total, 1st 90 insts. | 5,447,731 | 883,167 | 663,069 | 252,531 | 356,302 | 2,975,109 | 75,017 | 174,776 | 67,760 |
| 91 Texas Christian Univ | 1,823 | 0 | 685 | 15 | 9 | 257 | 854 | 3 | 0 |
| 92 Amherst College | 1,792 | 0 | 777 | 2 | 10 | 757 | 2 | 68 | 176 |
| 93 Occidental College | 1,627 | 0 | 164 | 58 | 10 | 1,358 | 9 | 28 | 0 |
| 94 Nova University | 1,601 | 0 | 96 | 1,242 | 0 | 3 | 210 | 6 | 44 |
| 95 Santa Clara University | 1,569 | 726 | 120 | 0 | 168 | 286 | 17 | 252 | 0 |
| 96 University of Detroit | 1,526 | 1,061I | 171I | 0I | 0I | 90I | 92I | 44I | 68I |
| 97 Seton Hall University | 1,515I | 0I | 514I | 0I | 1I | 52I | 874I | 74I | 0I |
| 98 Wentworth Inst of Tech | 1,435 | 0 | 0 | 1,435 | 0 | 0 | 0 | 0 | 0 |
| 99 Smith College | 1,398 | 0 | 188 | 187 | 123 | 304 | 160 | 436 | 0 |
| 100 Villanova University | 1,390 | 452 | 219 | 0 | 115 | 301 | 269 | 34 | 0 |
| Total, 1st 100 insts. | 5,463,407 | 885,406 | 666,003 | 255,470 | 356,738 | 2,978,517 | 77,504 | 175,721 | 68,048 |
| Total, all other sampled insts. | 31,814 | 882 | 6,536 | 895 | 1,492 | 13,586 | 5,680 | 2,214 | 529 |
| Estimated total non-sampled insts. | 30,006 | 1,593 | 7,485 | 5,448 | 1,681 | 9,625 | 1,542 | 750 | 1,882 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

BEST COPY AVAILABLE

128

Table B-45. Federally financed R&D expenditures at private universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|----------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 4,002,834 | 639,869 | 569,714 | 219,205 | 301,442 | 2,128,477 | 61,078 | 59,150 | 23,898 |
| 1 Johns Hopkins Univ | 599,851 | 200,964 | 91,640 | 37,661 | 96,858 | 163,223 | 1,162 | 5,274 | 3,069 |
| 2 Stanford University | 251,446 | 69,015 | 48,995 | 3,390 | 14,749 | 110,547 | 3,186 | 1,564 | 0 |
| 3 Mass Inst of Technology | 233,813 | 85,559 | 82,688 | 9,776 | 11,103 | 32,758 | 7,231 | 927 | 3,771 |
| 4 Cornell University | 171,249 | 22,780 | 35,290 | 3,161 | 22,014 | 84,922 | 1,106 | 1,880 | 96 |
| 5 Columbia Univ Main Div | 156,270 | 11,777 | 15,497 | 23,965 | 3,565 | 97,783 | 1,149 | 2,534 | 0 |
| 6 Harvard University | 154,090 | 872 | 24,954 | 5,815 | 3,581 | 102,593 | 1,299 | 12,316 | 2,660 |
| 7 Yale University | 144,962 | 4,652 | 13,814 | 1,754 | 6,324 | 116,188 | 1,686 | 544 | 0 |
| 8 Univ of Pennsylvania | 133,747 | 6,685 | 14,495 | 41 | 7,006 | 96,957 | 1,357 | 3,287 | 3,919 |
| 9 Univ of Southern Cal | 123,714 | 18,427 | 7,039 | 5,196 | 28,533 | 57,813 | 5,227 | 1,479 | 0 |
| 10 Duke University | 106,053 | 4,899 | 7,344 | 1,817 | 2,288 | 84,358 | 1,471 | 3,876 | 0 |
| Total, 1st 10 insts. | 2,075,195 | 425,630 | 341,756 | 92,576 | 196,021 | 947,142 | 24,874 | 33,681 | 13,515 |
| 11 Washington University | 105,759 | 1,262 | 5,231 | 1,414 | 3,472 | 93,531 | 704 | 145 | 0 |
| 12 University of Rochester | 105,644 | 19,203 | 12,328 | 202 | 1,904 | 69,149 | 2,319 | 424 | 115 |
| 13 University of Chicago | 96,327 | 0 | 23,941 | 3,728 | 2,511 | 64,416 | 704 | 1,027 | 0 |
| 14 California Inst of Tech | 90,577 | 15,186 | 37,172 | 15,155 | 3,378 | 18,668 | 0 | 424 | 594 |
| 15 New York University | 80,756 | 0 | 2,745 | 68 | 9,941 | 63,771 | 3,316 | 356 | 559 |
| 16 Baylor Col of Medicine | 75,793 | 0 | 0 | 0 | 0 | 75,793 | 0 | 0 | 0 |
| 17 Case Western Reserve Univ | 70,515 | 12,638 | 5,807 | 156 | 189 | 50,890 | 232 | 603 | 0 |
| 18 University of Miami | 68,144 | 1,061 | 1,332 | 14,981 | 383 | 47,724 | 1,269 | 1,594 | 0 |
| 19 Vanderbilt University | 66,747 | 5,018 | 6,068 | 104 | 363 | 52,674 | 1,433 | 1,087 | 0 |
| 20 Yeshiva University | 65,066 | 0 | 0 | 0 | 0 | 65,066 | 0 | 0 | 0 |
| Total, 1st 20 insts. | 2,900,523 | 479,998 | 436,380 | 128,384 | 218,162 | 1,548,824 | 34,851 | 39,141 | 14,783 |
| 21 Carnegie-Mellon Univ | 64,550 | 13,040 | 5,944 | 31 | 35,450 | 4,625 | 3,403 | 1,863 | 194 |
| 22 Woods Hole Oceanographic Inst | 62,356 | 9,714 | 0 | 52,642 | 0 | 0 | 0 | 0 | 0 |
| 23 Northwestern University | 61,812 | 10,195 | 9,357 | 768 | 1,031 | 34,869 | 767 | 605 | 4,220 |
| 24 Boston University | 60,459 | 2,476 | 8,314 | 80 | 949 | 45,408 | 349 | 586 | 2,297 |
| 25 Emory University | 52,367 | 0 | 3,872 | 0 | 205 | 47,700 | 391 | 199 | 0 |
| 26 Princeton University | 51,559 | 11,931 | 16,288 | 3,930 | 4,818 | 11,174 | 2,387 | 1,031 | 0 |
| 27 CUNY Mt Sinai Sch of Med | 43,607 | 0 | 0 | 0 | 0 | 43,607 | 0 | 0 | 0 |
| 28 Tufts University | 38,290 | 1,626 | 1,184 | 3,737 | 174 | 30,518 | 749 | 302 | 0 |
| 29 Brown University | 36,919 | 5,704 | 5,355 | 3,961 | 6,139 | 14,315 | 1,301 | 144 | 0 |
| 30 Rockefeller University | 36,788 | 0 | 5,365 | 0 | 48 | 31,375 | 0 | 0 | 0 |
| Total, 1st 30 insts. | 3,409,230 | 534,684 | 492,059 | 193,533 | 266,976 | 1,812,415 | 44,198 | 43,871 | 21,494 |
| 31 Georgetown University | 36,093 | 0 | 3,212 | 336 | 975 | 29,137 | 61 | 2,372 | 0 |
| 32 Wake Forest University | 30,182 | 0 | 353 | 0 | 150 | 29,671 | 0 | 0 | 8 |
| 33 Dartmouth College | 30,135 | 4,065 | 2,386 | 547 | 267 | 22,735 | 341 | 101 | 0 |
| 34 University of Dayton | 29,044 | 24,163 | 1,044 | 56 | 1,046 | 277 | 2,446 | 12 | 0 |
| 35 Tulane University | 28,331 | 4,493 | 4,13 | 25 | 307 | 24,894 | 129 | 1,835 | 235 |
| 36 George Washington Univ | 26,817 | 4,715 | 858 | 24 | 5,232 | 15,728 | 141 | 81 | 38 |
| 37 Rensselaer Polytech Inst | 22,809 | 16,370 | 3,016 | 573 | 1,824 | 639 | 65 | 141 | 181 |
| 38 Thomas Jefferson Univ | 22,451 | 0 | 0 | 0 | 0 | 22,451 | 0 | 0 | 0 |
| 39 Medical College of Wis | 21,594 | 0 | 0 | 0 | 0 | 21,594 | 0 | 0 | 0 |
| 40 Rice University | 19,997 | 2,677 | 6,640 | 2,274 | 6,355 | 1,664 | 253 | 134 | 0 |
| Total, 1st 40 insts. | 3,676,683 | 587,167 | 509,981 | 197,368 | 283,132 | 1,981,205 | 47,327 | 48,547 | 21,956 |
| 41 Syracuse University | 18,924 | 3,738 | 4,204 | 609 | 5,459 | 3,783 | 304 | 827 | 0 |
| 42 Brandeis University | 18,819 | 0 | 2,616 | 0 | 698 | 10,549 | 1,086 | 3,870 | 0 |
| 43 St Louis University | 14,106 | 0 | 90 | 704 | 40 | 13,264 | 0 | 4 | 4 |
| 44 Howard University | 13,067 | 1,493 | 2,953 | 118 | 321 | 7,830 | 621 | 574 | 0 |
| 45 University of Notre Dame | 12,867 | 1,928 | 8,904 | 28 | 365 | 1,437 | 118 | 69 | 18 |
| 46 The Medical Col of Penna | 11,704 | 0 | 0 | 0 | 0 | 11,704 | 0 | 0 | 0 |
| 47 Lehigh University | 11,242 | 7,353 | 2,744 | 172 | 206 | 473 | 170 | 124 | 0 |
| 48 Southern Methodist Univ | 11,000 | 677 | 773 | 6,896 | 1,482 | 336 | 170 | 666 | 0 |
| 49 Northeastern University | 10,217 | 3,469 | 2,264 | 0 | 1,130 | 2,635 | 460 | 71 | 188 |
| 50 New York Medical College | 9,028 | 0 | 0 | 0 | 0 | 9,028 | 0 | 0 | 0 |
| Total, 1st 50 insts. | 3,807,657 | 605,830 | 534,529 | 205,895 | 292,544 | 2,042,244 | 49,697 | 54,752 | 22,166 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-45. Federally financed R&D expenditures at private universities and colleges,
by science/engineering field: fiscal year 1990

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|---------------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| 51 Hahnemann University | 8,244 | 0 | 0 | 0 | 0 | 7,406 | 838 | 0 | 0 |
| 52 Eastern VA Medical School | 7,782 | 0 | 0 | 0 | 0 | 7,782 | 0 | 0 | 0 |
| 53 University of Denver | 7,476 | 3,842 | 2,417 | 0 | 0 | 299 | 750 | 168 | 0 |
| 54 Polytechnic University | 7,025 | 5,218 | 1,530 | 0 | 49 | 0 | 0 | 28 | 200 |
| 55 Oregon Grad Inst Sci/Tech | 6,837 | 1,043 | 2,811 | 1,406 | 1,577 | 0 | 0 | 0 | 0 |
| 56 Boston College | 6,798 | 0 | 2,649 | 392 | 3,065 | 488 | 55 | 149 | 0 |
| 57 Catholic Univ of America | 6,783 | 1,571 | 3,906 | 0 | 1 | 623 | 586 | 96 | 0 |
| 58 Drexel University | 6,761 | 4,005 | 1,742 | 519 | 158 | 299 | 0 | 38 | 0 |
| 59 Meharry Medical College | 6,391 | 0 | 0 | 0 | 0 | 6,391 | 0 | 0 | 0 |
| 60 Loyola Univ - Chicago | 6,203 | 0 | 246 | 0 | 56 | 4,814 | 600 | 487 | 0 |
| Total, 1st 60 insts. | 3,877,957 | 621,509 | 549,830 | 208,212 | 297,450 | 2,070,346 | 52,526 | 55,718 | 22,366 |
| 61 Rush University | 6,083 | 0 | 0 | 0 | 0 | 5,392 | 691 | 0 | 0 |
| 62 Albany Med Ctr Grad Sch | 6,073 | 0 | 0 | 0 | 0 | 6,073 | 0 | 0 | 0 |
| 63 Brigham Young University | 5,357 | 3,313 | 940 | 88 | 70 | 653 | 0 | 0 | 293 |
| 64 Morehouse School of Med | 5,149 | 01 | 01 | 01 | 01 | 5,149 | 01 | 01 | 01 |
| 65 Tuskegee University | 4,783 | 652 | 212 | 0 | 0 | 3,834 | 0 | 29 | 56 |
| 66 Illinois Inst of Tech | 3,887 | 2,329 | 615 | 402 | 233 | 245 | 63 | 0 | 0 |
| 67 Clarkson University | 3,841 | 2,167 | 1,119 | 0 | 373 | 202 | 0 | 0 | 0 |
| 68 Mercer University | 3,590 | 3,259 | 0 | 0 | 0 | 331 | 0 | 0 | 0 |
| 69 U Hlth Sci/Chgo Med Sch | 3,547 | 0 | 0 | 0 | 0 | 3,547 | 0 | 0 | 0 |
| 70 American University | 3,532 | 0 | 969 | 0 | 67 | 1,069 | 154 | 1,273 | 0 |
| Total, 1st 70 insts. | 3,923,799 | 633,209 | 553,685 | 208,702 | 298,193 | 2,096,841 | 53,434 | 57,020 | 22,715 |
| 71 Loma Linda University | 3,349 | 0 | 0 | 0 | 0 | 3,349 | 0 | 0 | 0 |
| 72 Chas R Drew U of Med & Sc | 3,098 | 01 | 01 | 01 | 01 | 2,438 | 01 | 660 | 01 |
| 73 Stevens Institute of Tech | 2,960 | 2,217 | 743 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74 Creighton University | 2,405 | 0 | 0 | 0 | 0 | 2,405 | 0 | 0 | 0 |
| 75 Worcester Poly Institute | 2,365 | 1,403 | 266 | 0 | 230 | 454 | 0 | 12 | 0 |
| 76 Fairleigh Dickinson Univ | 2,364 | 62 | 0 | 2,295 | 0 | 7 | 0 | 0 | 0 |
| 77 Hampton University | 2,307 | 174 | 1,854 | 0 | 279 | 0 | 0 | 0 | 0 |
| 78 Texas Col of Osteo Med | 2,031 | 0 | 0 | 0 | 0 | 2,031 | 0 | 0 | 0 |
| 79 Wesleyan University | 1,949 | 01 | 887 | 71 | 127 | 883 | 261 | 191 | 01 |
| 80 Xavier University of LA | 1,902 | 0 | 418 | 0 | 0 | 1,484 | 0 | 0 | 0 |
| Total, 1st 80 insts. | 3,948,529 | 637,065 | 557,853 | 211,004 | 298,829 | 2,109,892 | 53,460 | 57,711 | 22,715 |
| 81 Marquette University | 1,855 | 283 | 549 | 0 | 58 | 875 | 4 | 0 | 86 |
| 82 Fordham University | 1,723 | 0 | 191 | 0 | 59 | 672 | 0 | 801 | 0 |
| 83 Wentworth Inst of Tech | 1,435 | 0 | 0 | 1,435 | 0 | 0 | 0 | 0 | 0 |
| 84 Texas Christian Univ | 1,362 | 0 | 389 | 0 | 6 | 136 | 831 | 0 | 0 |
| 85 Nova University | 1,341 | 0 | 96 | 1,035 | 0 | 0 | 210 | 0 | 0 |
| 86 Seton Hall University | 1,302 | 01 | 428 | 01 | 01 | 01 | 874 | 01 | 01 |
| 87 Bryn Mawr College | 1,252 | 0 | 336 | 279 | 91 | 188 | 126 | 232 | 0 |
| 88 Florida Inst of Tech | 1,251 | 183 | 56 | 159 | 137 | 621 | 95 | 0 | 0 |
| 89 Amherst College | 1,233 | 0 | 593 | 0 | 0 | 640 | 0 | 0 | 0 |
| 90 Cal Sch Prof Psych-L A | 1,163 | 0 | 0 | 0 | 0 | 0 | 1,163 | 0 | 0 |
| Total, 1st 90 insts. | 3,962,446 | 637,531 | 560,491 | 213,912 | 299,180 | 2,113,024 | 56,763 | 58,744 | 22,801 |
| 91 Fisk University | 1,156 | 0 | 916 | 0 | 0 | 240 | 0 | 0 | 0 |
| 92 University of Tulsa | 1,037 | 206 | 125 | 135 | 177 | 299 | 95 | 0 | 0 |
| 93 Cal Sch Prof Psych-Fresno | 985 | 0 | 0 | 0 | 0 | 0 | 985 | 0 | 0 |
| 94 Inst Paper Sci and Tech | 965 | 549 | 416 | 0 | 0 | 0 | 0 | 0 | 0 |
| 95 Union College (NY) | 944 | 801 | 194 | 01 | 961 | 574 | 01 | 01 | 01 |
| 96 Villanova University | 943 | 151 | 156 | 0 | 88 | 279 | 269 | 0 | 0 |
| 97 Clark University | 919 | 0 | 519 | 267 | 62 | 70 | 1 | 0 | 0 |
| 98 Ponce School of Medicine | 919 | 0 | 0 | 0 | 0 | 919 | 0 | 0 | 0 |
| 99 University of the Pacific | 897 | 154 | 211 | 01 | 01 | 722 | 01 | 01 | 01 |
| 100 Morehouse College | 868 | 0 | 4 | 0 | 0 | 864 | 0 | 0 | 0 |
| Total, 1st 100 insts. | 3,972,079 | 638,671 | 562,842 | 214,314 | 299,603 | 2,116,991 | 58,113 | 58,744 | 22,801 |
| Total, all other sampled insts. | 14,559 | 972 | 2,893 | 281 | 846 | 7,043 | 1,850 | 358 | 316 |
| Estimated total non-sampled insts. | 16,196 | 226 | 3,979 | 4,610 | 993 | 4,443 | 1,115 | 48 | 781 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-46. Total and federally financed R&D expenditures at historically black colleges and universities: fiscal years 1987-90

[Dollars in thousands]

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|---------|---------|---------|--------|--------------------|---------|---------|--------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 134,859 | 123,591 | 92,458 | 73,759 | 111,394 | 100,973 | 75,625 | 61,230 |
| 1 Howard University | 17,382 | 17,125I | 16,870I | 16,615 | 13,067 | 12,146I | 11,227I | 10,308 |
| 2 Florida A & M University | 15,847 | 14,171 | 12,079 | 9,364 | 13,110 | 10,509 | 8,674 | 8,100 |
| 3 NC Ag & Tech State Univ | 8,657 | 6,706 | 6,401 | 4,461 | 7,503 | 5,752 | 5,717 | 3,603 |
| 4 Alabama A & M University | 7,010 | 6,272 | 6,140 | 4,534 | 5,560 | 4,801 | 5,121 | 4,356 |
| 5 Meharry Medical College | 6,663 | 6,564 | 5,228 | 4,797 | 6,391 | 6,397 | 5,125 | 4,414 |
| 6 Morehouse School of Med | 5,891 | 4,320 | 2,222 | 0I | 5,149 | 4,238 | 1,815 | 0 |
| 7 Tuskegee University | 5,089 | 5,348 | 3,752 | 2,752 | 4,783 | 4,967 | 3,543 | 2,598 |
| 8 U of the Virgin Islands | 4,883E | 4,734 | 2,666 | 2,386E | 2,639E | 2,600 | 2,578 | 1,447E |
| 9 Southern U & A&M College | 4,856 | 3,967 | 3,451 | 2,196 | 4,094 | 3,233 | 3,112 | 2,196 |
| 10 Central State University | 3,976 | 673 | NA | NA | 2,323 | 449 | NA | NA |
| Total, 1st 10 insts. | 80,254 | 69,880 | 60,809 | 47,105 | 64,619 | 55,092 | 46,912 | 37,022 |
| 11 Jackson State University | 3,762 | 3,747 | 3,403 | 2,260 | 3,381 | 3,624 | 2,801 | 2,040 |
| 12 Prairie View A & M Univ | 3,521 | 3,680 | 1,741E | 1,498 | 3,406 | 3,568 | 1,560E | 1,334 |
| 13 Tennessee State Univ | 3,300 | 3,442 | 3,408 | 2,719 | 3,290 | 3,382 | 3,382 | 2,717 |
| 14 Virginia State University | 3,238 | 2,620 | 2,476 | 2,356I | 2,744 | 2,056 | 2,476 | 2,326I |
| 15 Kentucky State University | 2,856 | 1,721 | 1,697 | 1,856 | 2,856 | 1,721 | 1,697 | 1,827 |
| 16 Lincoln University | 2,771 | 2,901 | NA | NA | 2,600 | 2,706 | NA | NA |
| 17 South Carolina St College | 2,593 | 1,694I | 796 | 878I | 1,308 | 1,014I | 721 | 810I |
| 18 University of D C | 2,569 | 2,271I | 1,973 | 1,485 | 1,455 | 1,330I | 1,205 | 738 |
| 19 Fort Valley State Univ. | 2,313 | 2,173 | NA | NA | 1,938 | 1,741 | NA | NA |
| 20 Hampton University | 2,307 | 2,168 | NA | NA | 2,307 | 2,168 | NA | NA |
| Total, 1st 20 insts. | 109,504 | 96,297 | 76,303 | 60,157 | 89,904 | 78,402 | 60,754 | 48,814 |
| 21 Alcorn State University | 1,935 | 1,850 | 1,692E | 1,623I | 1,487 | 1,850 | 1,692I | 1,623I |
| 22 Xavier University of LA | 1,902 | 1,294 | NA | NA | 1,902 | 1,294 | NA | NA |
| 23 U of MD Eastern Shore | 1,850 | 2,944 | 1,736 | 1,522 | 1,552 | 2,203 | 1,736 | 1,522 |
| 24 Texas Southern Univ | 1,546 | 1,519 | 1,703 | 1,491I | 1,363 | 1,293 | 1,419 | 1,263I |
| 25 Langston University | 1,200 | 2,349 | NA | NA | 1,200 | 1,961 | NA | NA |
| 26 Univ of Ark Pine Bluff | 1,188 | 1,148 | 1,199 | 1,047 | 1,188 | 1,148 | 1,199 | 1,047 |
| 27 Albany State College | 1,173 | 1,725 | 366 | 263 | 516 | 653 | 348 | 263E |
| 28 Fisk University | 1,156 | 1,157 | 1,741 | 862 | 1,156 | 1,131 | 1,379 | 777 |
| 29 Tougaloo College | 1,028 | 1,191 | NA | NA | 566 | 787 | NA | NA |
| 30 Delaware State College | 1,027 | 1,027 | NA | NA | 920 | 920 | NA | NA |
| Total, 1st 30 insts. | 123,509 | 112,501 | 84,740 | 66,965 | 101,754 | 91,642 | 68,527 | 55,309 |
| 31 Coppin State College | 1,017 | 834 | NA | NA | 387 | 388 | NA | NA |
| 32 Morehouse College | 868 | 1,093 | NA | NA | 868 | 997 | NA | NA |
| 33 Lincoln University (PA) | 845 | 768E | 867 | 648I | 632 | 692E | 789 | 591I |
| 34 Norfolk State University | 826 | 652 | 425 | 304 | 825 | 648 | 400 | 266 |
| 35 Selma University | 790 | 816 | NA | NA | 790 | 816 | NA | NA |
| 36 Morgan State University | 657 | 649 | 742E | 635 | 655 | 638 | 742E | 346 |
| 37 Morris Brown College | 647E | 164 | NA | NA | 464E | 164 | NA | NA |
| 38 Bethune Cookman College | 554 | 440 | NA | NA | 494 | 420 | NA | NA |
| 39 Southern Univ-New Orleans | 553I | 500 | NA | NA | 459I | 420E | NA | NA |
| 40 Winston-Salem State Univ | 532 | 650 | NA | NA | 532 | 650 | NA | NA |
| Total, 1st 40 insts. | 130,798 | 119,067 | 86,774 | 68,552 | 107,860 | 97,475 | 70,458 | 56,512 |
| 41 Spelman College | 505 | 399 | NA | NA | 348 | 272 | NA | NA |
| 42 Johnson C. Smith Univ | 477 | 480 | NA | NA | 467 | 480 | NA | NA |
| 43 Bennett College | 425 | 364 | NA | NA | 358 | 229 | NA | NA |
| 44 Alabama State University | 423 | 456 | NA | NA | 403 | 456 | NA | NA |
| 45 Grambling State Univ | 409 | 106 | 64 | 136 | 182 | 106 | 64 | 128 |
| 46 Oakwood College | 226 | 0 | NA | NA | 226 | 0 | NA | NA |
| 47 Savannah State College | 221 | 179 | NA | NA | 221 | 179 | NA | NA |
| 48 Claflin College | 205 | 0E | NA | NA | 203 | 0E | NA | NA |
| 49 North Carolina Cntrl Univ | 199 | 555E | 571 | 515I | 199 | 422E | 350 | 317I |
| 50 Rust College | 156 | 214 | NA | NA | 156 | 214 | NA | NA |
| Total, 1st 50 insts. | 134,044 | 121,820 | 87,409 | 69,203 | 110,623 | 99,833 | 70,872 | 56,957 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-46. Total and federally financed R&D expenditures at historically black colleges and universities: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|---------------------------------|---------|---------|--------|--------|--------------------|---------|--------|--------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Fayetteville State Univ | 154 | 360 | NA | NA | 154 | 258 | NA | NA |
| 52 West Virginia State Col | 146 | 81 | NA | NA | 138 | 75 | NA | NA |
| 53 Southern Univ-Shreveport | 131 | 148 | NA | NA | 131 | 148 | NA | NA |
| 54 Philander Smith College | 120 | 165 | NA | NA | 120 | 154 | NA | NA |
| 55 Jarvis Christian College | 75 | 60 | NA | NA | 75 | 60 | NA | NA |
| 56 Knoxville College | 66I | 60 | NA | NA | 55I | 50 | NA | NA |
| 57 Miss Valley State Univ | 43 | 14 | 31 | 0 | 43 | 14 | 31 | 0 |
| 58 Bowie State University | 35 | 0 | NA | NA | 35 | 0 | NA | NA |
| 59 Trenholm State Tech Col | 30 | 22 | NA | NA | 5 | 5 | NA | NA |
| 60 Elizabeth City State Univ | 15 | 26 | NA | NA | 15 | 26 | NA | NA |
| Total, 1st 60 insts. | 134,859 | 122,756 | 87,440 | 69,203 | 111,394 | 100,623 | 70,903 | 56,957 |
| 61 Benedict College | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| 62 Cheyney University of PA | 0 | 0E | NA | NA | 0 | 0E | NA | NA |
| 63 Clark Atlanta University | 0I | 0E | NA | NA | 0I | 0E | NA | NA |
| 64 Dillard University | 0 | 469 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 Paul Quinn College | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| 66 Shaw University | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| 67 Stillman College | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| 68 Talladega College | 0 | 366 | NA | NA | 0 | 350 | NA | NA |
| 69 Voorhees College | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| 70 Wiley College | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| Total, 1st 70 insts. | 134,859 | 123,591 | 87,440 | 69,203 | 111,394 | 100,973 | 70,903 | 56,957 |
| Total, all other sampled insts. | 0 | 0 | 5,018 | 4,556 | 0 | 0 | 4,722 | 4,273 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-47. Total and federally financed R&D expenditures in engineering at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|-----------|-----------|-----------|-----------|--------------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 2,681,751 | 2,403,788 | 2,096,863 | 1,891,716 | 1,534,931 | 1,385,080 | 1,229,568 | 1,112,122 |
| 1 Johns Hopkins Univ | 204,793 | 209,748 | 162,390 | 172,790 | 200,964 | 206,629 | 159,976 | 170,869 |
| 2 Mass Inst of Technology | 127,004 | 116,367 | 107,281 | 110,835 | 85,559 | 80,356 | 77,811 | 80,331 |
| 3 Pennsylvania State Univ | 118,070 | 97,276 | 82,807 | 68,326 | 74,737 | 59,260 | 54,583 | 45,736 |
| 4 Georgia Institute of Tech | 116,867 | 116,109 | 95,484 | 84,329 | 65,901 | 65,178 | 52,700 | 44,239 |
| 5 Stanford University | 83,694 | 78,311 | 75,828 | 68,008 | 69,015 | 65,502 | 63,486 | 56,610 |
| 6 Univ of Ill Urbana | 66,497 | 58,003 | 58,693 | 51,825 | 42,064 | 37,780 | 39,175 | 33,585 |
| 7 Texas A & M University | 62,791 | 52,541 | 37,517 | 34,314 | 13,388 | 14,743 | 11,441 | 8,467 |
| 8 Univ of Texas at Austin | 58,968 | 50,944 | 46,086 | 44,682 | 26,031 | 22,894 | 21,150 | 21,489 |
| 9 University of Michigan | 53,905 | 46,866 | 42,808 | 35,850 | 31,447 | 27,507 | 24,633 | 18,566 |
| 10 Univ of Cal Berkeley | 52,124 | 47,393 | 42,432 | 39,888 | 29,399 | 28,936 | 25,371 | 24,446 |
| Total, 1st 10 insts. | 944,713 | 873,558 | 751,326 | 710,847 | 638,505 | 608,785 | 530,326 | 504,338 |
| 11 VA Polytech Inst & St U | 44,473 | 36,123 | 30,282 | 26,916 | 22,304 | 17,234 | 14,436 | 13,443 |
| 12 Univ of MD College Park | 43,964 | 41,624 | 37,807 | 34,532 | 16,336 | 15,655 | 15,397 | 15,881 |
| 13 Ohio State University | 43,810 | 40,616 | 28,723 | 24,993 | 13,781 | 12,567 | 12,180 | 10,758 |
| 14 Utah State University | 40,694 | 23,852 | 18,763 | 5,243 | 38,495 | 21,007 | 15,352 | 3,624 |
| 15 N C State Univ at Raleigh | 40,181 | 34,421 | 31,219 | 24,068 | 15,077 | 11,209 | 9,823 | 8,132 |
| 16 Univ of Wis-Madison | 39,781 | 34,697 | 32,287 | 30,076 | 24,474 | 21,745 | 21,125 | 18,810 |
| 17 Cornell University | 39,663 | 38,648 | 39,822 | 36,439 | 22,780 | 22,630 | 24,232 | 21,592 |
| 18 New Mexico State Univ | 35,725 | 30,060 | 27,195 | 16,370 | 32,984 | 27,538 | 25,023 | 14,905 |
| 19 Rensselaer Polytech Inst | 33,993 | 27,106 | 25,095 | 18,434 | 16,370 | 11,674 | 12,592 | 10,403 |
| 20 Univ. Of Tennessee System | 33,093 | 29,852 | 23,623 | 20,193 | 19,355 | 18,788 | 14,431 | 12,319 |
| Total, 1st 20 insts. | 1,340,090 | 1,210,557 | 1,046,142 | 948,111 | 860,461 | 788,832 | 694,917 | 634,205 |
| 21 Purdue University | 32,466 | 32,873 | 32,206 | 30,371 | 18,301 | 18,733 | 19,612 | 19,104 |
| 22 University of Dayton | 30,722 | 24,511 | 24,776 | 24,134 | 24,163 | 20,423 | 20,341 | 20,338 |
| 23 University of Florida | 30,585 | 27,162 | 21,526 | 19,751 | 14,766 | 13,379 | 9,325 | 8,258 |
| 24 University of Minnesota | 27,943 | 27,709 | 24,184 | 23,161 | 10,781 | 10,421 | 8,890 | 8,280 |
| 25 Univ of Southern Cal | 27,713 | 24,525 | 23,480 | 20,141 | 18,427 | 16,495 | 17,280 | 15,336 |
| 26 Iowa St U of Sci & Tech | 26,974 | 25,225 | 20,292 | 18,402 | 11,496 | 8,821 | 7,734 | 4,458 |
| 27 Univ of South Florida | 24,961 | 21,257 | 2,846 | 1,886 | 18,910 | 15,248 | 5,444 | 364 |
| 28 Univ of Cal Los Angeles | 24,213 | 22,975 | 21,497 | 19,929 | 16,873 | 16,679 | 15,733 | 14,141 |
| 29 Carnegie-Mellon Univ | 24,000 | 25,982 | 25,548 | 21,770 | 13,040 | 14,934 | 14,005 | 11,863 |
| 30 SUNY at Buffalo | 23,166 | 19,630 | 17,874 | 7,591 | 7,900 | 6,486 | 8,321 | 4,203 |
| Total, 1st 30 insts. | 1,612,833 | 1,462,406 | 1,260,371 | 1,135,247 | 1,015,118 | 930,451 | 816,902 | 740,550 |
| 31 Princeton University | 23,048 | 20,957 | 17,964 | 15,084 | 11,931 | 10,508 | 10,521 | 9,873 |
| 32 University of Rochester | 22,858 | 23,768 | 18,897 | 18,613 | 19,203 | 19,943 | 15,714 | 13,746 |
| 33 Univ of Cal Santa Barbara | 22,214 | 15,237 | 13,461 | 11,377 | 18,807 | 12,352 | 11,178 | 9,251 |
| 34 Rutgers the St Univ of NJ | 21,694 | 19,463 | 15,296 | 14,925 | 4,262 | 3,680 | 2,423 | 1,997 |
| 35 Louisiana State Univ | 20,890 | 13,216 | 11,911 | 8,480 | 8,345 | 2,979 | 2,144 | 2,129 |
| 36 Univ. of Colorado | 20,660 | 15,625 | 12,523 | 7,969 | 13,704 | 10,816 | 8,248 | 5,010 |
| 37 University of Connecticut | 20,655 | 20,039 | 11,549 | 8,310 | 3,450 | 3,498 | 2,337 | 1,746 |
| 38 University of New Mexico | 20,402 | 14,753 | 14,220 | 19,444 | 10,689 | 7,444 | 8,333 | 13,762 |
| 39 Lehigh University | 19,596 | 18,214 | 18,949 | 16,995 | 7,353 | 6,186 | 6,449 | 5,866 |
| 40 Case Western Reserve Univ | 19,049E | 18,089 | 16,062 | 14,104 | 12,638 | 13,173 | 10,911 | 10,072 |
| Total, 1st 40 insts. | 1,823,899 | 1,641,777 | 1,411,203 | 1,270,548 | 1,125,500 | 1,021,030 | 895,160 | 814,002 |
| 41 Auburn University | 18,819 | 16,996 | 15,775 | 15,290 | 5,017 | 7,664 | 9,124 | 7,166 |
| 42 Arizona State University | 18,618 | 14,642 | 14,991 | 17,317 | 4,933 | 5,742 | 5,745 | 5,177 |
| 43 University of Virginia | 18,116 | 14,382 | 12,301 | 10,688 | 9,776 | 7,621 | 6,184 | 5,669 |
| 44 Columbia Univ Main Div | 17,647 | 15,429 | 15,677 | 12,806 | 11,777 | 9,386 | 12,747 | 9,743 |
| 45 Northwestern University | 17,407 | 14,728 | 13,422 | 11,032 | 10,195 | 8,200 | 7,512 | 6,545 |
| 46 California Inst of Tech | 17,363 | 16,670 | 17,124 | 14,436 | 15,186 | 13,641 | 14,516 | 12,357 |
| 47 University of Washington | 16,985 | 16,738 | 16,374 | 19,101 | 11,359 | 10,581 | 11,296 | 10,453 |
| 48 University of Utah | 16,502 | 15,959 | 13,106 | 9,970 | 7,872 | 9,365 | 7,795 | 5,297 |
| 49 Clemson University | 16,414 | 14,179 | 13,212 | 11,602 | 4,703 | 3,239 | 3,114 | 2,035 |
| 50 N Mex Inst Mining & Tech | 16,090 | 16,325 | 15,114 | 20,335 | 2,519 | 4,378 | 3,874 | 7,451 |
| Total, 1st 50 insts. | 1,997,860 | 1,797,825 | 1,558,299 | 1,413,125 | 1,208,837 | 1,100,847 | 977,067 | 885,895 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-47. Total and federally financed R&D expenditures in engineering at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------------|-----------|-----------|-----------|-----------|--------------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Colorado State University | 16,026 | 13,853 | 13,151 | 10,344 | 11,768 | 10,472 | 10,328 | 7,866 |
| 52 Oklahoma State University | 15,639 | 9,812 | 7,715 | 5,853 | 6,931 | 3,577 | 1,691 | 1,196 |
| 53 Michigan State University | 14,650 | 11,494 | 10,139 | 9,264 | 4,922 | 3,604 | 3,250 | 3,224 |
| 54 University of Arizona | 14,220 | 12,583 | 10,473 | 9,912 | 6,989 | 6,114 | 4,398 | 4,464 |
| 55 University of Cincinnati | 14,150 | 12,911 | 11,037 | 9,636 | 6,903 | 5,956 | 5,429 | 5,176 |
| 56 Drexel University | 12,835 | 11,101 | 10,390 | 10,459 | 4,005 | 3,336 | 4,007 | 5,318 |
| 57 Mississippi State Univ | 12,433 | 10,145 | 6,774 | 6,024 | 8,199 | 6,791 | 3,953 | 3,404 |
| 58 University of Delaware | 12,251 | 10,874 | 9,596 | 11,699 | 4,305 | 4,461 | 4,025 | 4,954 |
| 59 University of Kentucky | 12,172 | 11,336 | 6,661 | 4,383 | 2,821 | 3,032 | 1,749 | 1,842 |
| 60 Univ Alabama Huntsville | 11,918 | 10,156 | 6,298 | 5,349 | 8,108 | 6,519 | 4,272 | 3,316 |
| Total, 1st 60 insts. | 2,134,154 | 1,912,090 | 1,650,533 | 1,496,048 | 1,273,788 | 1,154,709 | 1,020,169 | 926,655 |
| 61 Woods Hole Ocnographic Inst | 11,343 | 9,445 | 11,600 | 9,716 | 9,714 | 7,290 | 8,600 | 8,263 |
| 62 Univ of Pennsylvania | 10,832 | 9,981 | 8,878 | 8,745 | 6,685 | 6,439 | 5,743 | 4,808 |
| 63 Michigan Tech University | 10,366 | 8,861 | 8,642 | 7,701 | 3,490 | 2,483 | 3,349 | 2,538 |
| 64 Univ of Missouri Columbia | 9,738 | 5,653 | 4,682 | 3,930 | 1,624 | 1,034 | 805 | 761 |
| 65 Univ of Nebraska-Lincoln | 9,709 | 7,253 | 4,649 | 3,613 | 1,337 | 991 | 1,000 | 709 |
| 66 University of Iowa | 9,707 | 8,710 | 8,845 | 6,162 | 4,412 | 3,833 | 3,678 | 3,297 |
| 67 Univ of Massachusetts | 9,239 | 8,814 | 7,428 | 6,557 | 4,752 | 4,142 | 3,777 | 3,286 |
| 68 Univ of Missouri Rolla | 9,207 | 11,435 | 12,812 | 9,881 | 2,774 | 2,315 | 2,697 | 3,161 |
| 69 Texas Tech University | 8,801 | 8,839 | 7,485 | 6,721 | 2,668 | 3,432 | 2,840 | 2,508 |
| 70 University of Oklahoma | 8,735 | 8,529 | 6,783 | 5,380 | 2,009 | 2,247 | 2,152 | 1,543 |
| Total, 1st 70 insts. | 2,231,831 | 1,999,610 | 1,732,337 | 1,564,454 | 1,313,253 | 1,188,915 | 1,054,810 | 957,529 |
| 71 Oregon State University | 8,459 | 5,130 | 6,302 | 5,115 | 5,445 | 2,902 | 3,714 | 2,792 |
| 72 University of N Dakota | 8,271 | 8,210 | 7,583 | 7,151 | 6,793 | 6,056 | 5,702 | 5,512 |
| 73 U of Houston | 8,027 | 8,020 | 6,725 | 7,359 | 2,754 | 3,137 | 2,999 | 2,609 |
| 74 Polytechnic University | 7,864 | 8,013 | 6,071 | 6,657 | 5,218 | 5,661 | 4,305 | 4,613 |
| 75 Tenn Technological Univ | 7,832 | 6,359 | 6,336E | 5,875 | 644 | 267 | 235 | 159 |
| 76 Univ of Cal Davis | 7,794 | 7,124 | 6,402 | 5,546 | 4,149 | 4,015 | 4,224 | 3,645 |
| 77 Syracuse University | 7,560 | 11,575 | 6,863 | 4,985 | 3,738 | 6,357 | 3,170 | 2,147 |
| 78 Univ of Cal San Diego | 7,454 | 6,373 | 4,488 | 3,775 | 5,304 | 4,634 | 2,806 | 1,611 |
| 79 Vanderbilt University | 7,287 | 5,798 | 5,219 | 3,693 | 5,018 | 3,793 | 2,555 | 1,884 |
| 80 Brown University | 7,156 | 6,382 | 6,205 | 6,460 | 5,704 | 5,357 | 5,525 | 5,725 |
| Total, 1st 80 insts. | 2,309,535 | 2,072,594 | 1,794,531 | 1,621,070 | 1,358,020 | 1,231,094 | 1,090,045 | 988,226 |
| 81 Univ of Ark Fayetteville | 7,059 | 5,818 | 4,146 | 4,576 | 2,193 | 1,787 | 1,085 | 993 |
| 82 Univ of South Carolina | 6,974 | 3,088 | 2,400 | 1,178 | 2,308 | 1,298 | 926 | 517 |
| 83 Yale University | 6,732 | 6,052 | 5,794 | 6,123 | 4,652 | 4,228 | 4,079 | 4,038 |
| 84 University of Idaho | 6,719 | 6,477 | 6,032 | 4,143 | 4,101 | 3,755 | 3,113 | 2,119 |
| 85 The University of Alabama | 6,709 | 5,555 | 5,884 | 3,837 | 2,871 | 2,514 | 3,064 | 1,703 |
| 86 Duke University | 6,492 | 5,407 | 3,233 | 2,812 | 4,899 | 3,744 | 2,103 | 1,486 |
| 87 Univ of Alaska Fairbanks | 6,280 | 4,674 | 4,110E | 3,313I | 2,662 | 1,617 | 1,422E | 1,036I |
| 88 SUNY Col of Env Sci & For | 6,240 | 5,465 | 3,843 | 3,066 | 226 | 194 | 140 | 45 |
| 89 Kans St U - Ag & App Sci | 6,186 | 4,651 | 3,914 | 3,993 | 1,921 | 1,429 | 872 | 777 |
| 90 Colorado School of Mines | 6,097 | 3,069 | 3,726 | 3,693 | 2,576 | 1,622 | 2,375 | 2,272 |
| Total, 1st 90 insts. | 2,375,023 | 2,122,850 | 1,837,613 | 1,657,804 | 1,386,429 | 1,253,282 | 1,109,224 | 1,003,212 |
| 91 Washington State Univ | 6,025 | 4,305 | 3,703 | 3,182 | 2,037 | 1,672 | 1,772 | 1,538 |
| 92 Wayne State University | 5,951 | 4,700 | 3,625 | 3,635 | 2,121 | 1,740 | 1,352 | 1,166 |
| 93 University of Pittsburgh | 5,944 | 6,201 | 5,498 | 5,908 | 2,967 | 2,910 | 2,590 | 3,185 |
| 94 George Washington Univ | 5,898 | 6,039 | 5,460 | 4,798 | 4,715 | 4,766 | 4,588E | 4,020 |
| 95 Ohio University | 5,766 | 4,611 | 4,302 | 3,702 | 2,332 | 1,794 | 2,043 | 1,531 |
| 96 US Naval Postgrad School | 5,575 | 4,419 | 3,931 | 3,791 | 5,575 | 4,407 | 3,906 | 3,766 |
| 97 Univ of Ill Chicago | 5,486 | 5,939 | 4,940 | 4,496 | 2,335 | 2,247 | 1,588 | 1,879 |
| 98 Dartmouth College | 5,401E | 4,781 | 4,964 | 4,989 | 4,065I | 3,670 | 3,429 | 3,536 |
| 99 Clarkson University | 5,381 | 4,415 | 3,728 | 4,060 | 2,147 | 2,041 | 1,746 | 2,299 |
| 100 West Virginia University | 5,381 | 6,894 | 6,153 | 5,383 | 3,264 | 3,211 | 2,755 | 2,316 |
| Total, 1st 100 insts. | 2,431,831 | 2,175,154 | 1,883,917 | 1,701,748 | 1,417,987 | 1,281,740 | 1,134,963 | 1,028,448 |
| Total, all other sampled insts. | 225,585 | 207,415 | 212,946 | 189,968 | 107,945 | 94,581 | 94,605 | 83,674 |
| Estimated total non-sampled insts. | 24,335 | 21,219 | 0 | 0 | 8,999 | 8,759 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

BEST COPY AVAILABLE

115

Table B-48. R&D expenditures in engineering subfields
at universities and colleges: fiscal year 1990

[Dollars in thousands]

Page 1 of 2

| Institution ranking | Engineering subfields | | | | | | | |
|------------------------------|-----------------------|-----------------------------|----------|---------|-----------------|-----------------|--|---------|
| | Total | Aero/ astro- nautical | Chemical | Civil | Elec- trical | Mechan- ical | Metal- lurgical and materials | Other |
| Total, all institutions | 2,681,751 | 159,885 | 206,172 | 289,746 | 664,610 | 393,238 | 275,925 | 692,175 |
| 1 Johns Hopkins Univ | 204,793 | 20,455 | 4,580 | 2,524 | 63,082 | 41,889 | 880 | 71,383 |
| 2 Mass Inst of Technology | 127,004 | 13,587 | 13,456 | 10,082 | 37,952 | 17,792 | 13,244 | 20,891 |
| 3 Pennsylvania State Univ | 118,070 | 1,643 | 2,430 | 4,632 | 4,175 | 13,868 | 18,675 | 72,647 |
| 4 Georgia Institute of Tech | 116,867 | 11,638 | 5,382 | 3,895 | 66,885 | 15,837 | 1,883 | 11,347 |
| 5 Stanford University | 83,694 | 5,906 | 3,130 | 3,997 | 33,722 | 10,787 | 0 | 26,152 |
| 6 Univ of Ill Urbana | 66,497 | 1,211 | 1,667 | 7,608 | 10,718 | 6,916 | 20,771 | 17,606 |
| 7 Texas A & M University | 62,791 | 4,082 | 6,017 | 23,123 | 7,257 | 8,776 | 1,554 | 12,082 |
| 8 Univ of Texas at Austin | 58,968 | 4,153 | 6,025 | 12,688 | 7,782 | 18,233 | 2,214 | 7,875 |
| 9 University of Michigan | 53,905 | 2,671 | 2,668 | 5,990 | 19,111 | 7,707 | 5,932 | 11,826 |
| 10 Univ of Cal Berkeley | 52,124 | 88 | 1,931 | 10,603 | 27,127 | 3,440 | 3,432 | 5,503 |
| Total, 1st 10 insts. | 944,713 | 65,434 | 47,286 | 85,142 | 277,811 | 145,245 | 66,485 | 257,310 |
| 11 VA Polytech Inst & St U | 44,473 | 2,518 | 2,320 | 4,938 | 7,507 | 10,412 | 4,488 | 12,290 |
| 12 Univ of MD College Park | 43,964 | 2,212 | 4,941 | 3,355 | 10,883 | 6,136 | 0 | 16,437 |
| 13 Ohio State University | 43,810 | 1,182 | 873 | 1,335 | 6,587 | 4,014 | 2,968 | 26,851 |
| 14 Utah State University | 40,694 | 0 | 0 | 2,902 | 35,720 | 9,222 | 0 | 1,150 |
| 15 N C State Univ at Raleigh | 40,181 | 0 | 4,421 | 1,970 | 10,433 | 6,268 | 10,289 | 6,800 |
| 16 Univ of Wis-Madison | 39,781 | 0 | 4,363 | 1,834 | 7,188 | 1,806 | 3,862 | 20,728 |
| 17 Cornell University | 39,663 | 3,806 | 2,233 | 4,537 | 8,157 | 1,493 | 5,793 | 13,644 |
| 18 New Mexico State Univ | 35,725 | 25,984 | 921 | 543 | 8,225 | 6,601 | 0 | 221 |
| 19 Rensselaer Polytech Inst | 33,993 | 0 | 2,017 | 2,732 | 9,764 | 8,542 | 6,353 | 4,585 |
| 20 Univ. Of Tennessee System | 33,093 | 2,646 | 935 | 10,661 | 1,943 | 779 | 2,542 | 13,587 |
| Total, 1st 20 insts. | 1,340,090 | 103,782 | 69,481 | 119,949 | 384,218 | 186,277 | 102,780 | 373,603 |
| 21 Purdue University | 32,466 | 1,704 | 2,081 | 3,751 | 6,113 | 6,534 | 1,658 | 10,625 |
| 22 University of Dayton | 30,722 | 3,088 | 80 | 421 | 2,602 | 9,422 | 11,844 | 3,265 |
| 23 University of Florida | 30,585 | 1,851 | 1,359 | 4,273 | 4,340 | 1,25 | 6,312 | 11,195 |
| 24 University of Minnesota | 27,943 | 899 | 7,817 | 5,958 | 2,907 | 4,054 | 2,548 | 3,760 |
| 25 Univ of Southern Cal | 27,713 | 2,916 | 768 | 1,324 | 11,953 | 531 | 1,282 | 8,939 |
| 26 Iowa St U of Sci & Tech | 26,974 | 355 | 1,021 | 3,329 | 4,243 | 1,743 | 9,281 | 7,002 |
| 27 Univ of South Florida | 26,961 | 0 | 215 | 2,272 | 22,134 | 203 | 0 | 137 |
| 28 Univ of Cal Los Angeles | 24,213 | 0 | 1,264 | 1,673 | 8,469 | 7,430 | 2,882 | 2,495 |
| 29 Carnegie-Mellon Univ | 24,000 | 0 | 1,453 | 1,487 | 8,615 | 1,568 | 3,717 | 7,160 |
| 30 SUNY at Buffalo | 23,166 | 0 | 2,224 | 11,911 | 3,647 | 2,582 | 0 | 2,802 |
| Total, 1st 30 insts. | 1,612,833 | 114,595 | 87,763 | 156,348 | 459,241 | 221,599 | 142,304 | 430,983 |
| 31 Princeton University | 23,048 | 10,318 | 2,981 | 3,723 | 5,811 | 0 | 0 | 215 |
| 32 University of Rochester | 22,858 | 0 | 579 | 0 | 1,832 | 15,328 | 0 | 5,119 |
| 33 Univ of Cal Santa Barbara | 22,214 | 0 | 2,280 | 0 | 8,048 | 1,432 | 7,044 | 3,410 |
| 34 Rutgers the St Univ of NJ | 21,694 | 0 | 2,133 | 207 | 594 | 3,339 | 13,229 | 2,192 |
| 35 Louisiana State Univ | 20,890 | 0 | 2,714 | 2,383 | 1,453 | 1,756 | 6,136 | 6,448 |
| 36 Univ. of Colorado | 20,660 | 5,089 | 1,308 | 4,036 | 8,614 | 1,613 | 0 | 0 |
| 37 University of Connecticut | 20,655 | 0 | 703 | 3,220 | 1,598 | 857 | 14,266 | 11 |
| 38 University of New Mexico | 20,402 | 0 | 954 | 10,606 | 1,709 | 666 | 6,360 | 107 |
| 39 Lehigh University | 19,596 | 0 | 3,067 | 4,809 | 2,391 | 3,571 | 4,858 | 900 |
| 40 Case Western Reserve Univ | 19,049 | 0E | 3,665E | 696E | 3,944E | 3,943E | 3,817E | 2,984E |
| Total, 1st 40 insts. | 1,823,899 | 130,002 | 108,147 | 186,028 | 495,235 | 254,104 | 198,014 | 452,369 |
| 41 Auburn University | 18,819 | 4,535 | 3,259 | 3,785 | 1,789 | 2,472 | 585 | 2,394 |
| 42 Arizona State University | 18,618 | 14 | 2,644 | 2,073 | 6,133 | 3,569 | 0 | 4,185 |
| 43 University of Virginia | 18,116 | 911 | 886 | 699 | 2,580 | 1,987 | 4,995 | 6,058 |
| 44 Columbia Univ Main Div | 17,647 | 0 | 4,262 | 522 | 8,934 | 509 | 1,133 | 3,287 |
| 45 Northwestern University | 17,407 | 0 | 1,486 | 2,312 | 1,030 | 942 | 3,842 | 7,795 |
| 46 California Inst of Tech | 17,363 | 3,704 | 1,746 | 539 | 2,201 | 671 | 895 | 7,607 |
| 47 University of Washington | 16,985 | 1,821 | 2,135 | 3,717 | 2,888 | 1,463 | 1,288 | 3,675 |
| 48 University of Utah | 16,502 | 0 | 2,554 | 210 | 658 | 7,673 | 3,759 | 1,648 |
| 49 Clemson University | 16,414 | 0 | 1,176 | 1,984 | 2,511 | 2,905 | 0 | 7,838 |
| 50 N Mex Inst Mining & Tech | 16,090 | 0 | 2,259 | 0 | 0 | 0 | 2,988 | 10,843 |
| Total, 1st 50 insts. | 1,997,860 | 140,987 | 130,552 | 201,869 | 523,959 | 276,295 | 216,499 | 507,699 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-48. R&D expenditures in engineering subfields at universities and colleges: fiscal year 1990

[Dollars in thousands]

Page 2 of 2

| Institution ranking | Engineering subfields | | | | | | | |
|---------------------------------------|-----------------------|-----------------------------|----------|---------|-----------------|-----------------|--|---------|
| | Total | Aero/ astro- nautical | Chemical | Civil | Elec- trical | Mechan- ical | Metal- lurgical and materials | Other |
| 51 Colorado State University | 16,026 | 0 | 1,491 | 9,868 | 2,260 | 1,229 | 0 | 1,178 |
| 52 Oklahoma State University | 15,639 | 155 | 4,028 | 3,408 | 834 | 2,201 | 0 | 5,013 |
| 53 Michigan State University | 14,650 | 0 | 3 | 0 | 6 | 1,245 | 0 | 13,396 |
| 54 University of Arizona | 14,220 | 1,674 | 343 | 1,036 | 3,159 | 0 | 3,883 | 4,125 |
| 55 University of Cincinnati | 14,150 | 1,354 | 1,645 | 5,043 | 3,203 | 1,551 | 994 | 360 |
| 56 Drexel University | 12,835 | 0 | 427 | 1,248 | 5,313 | 2,959 | 2,751 | 137 |
| 57 Mississippi State Univ | 12,433 | 2,616 | 1,082 | 135 | 1,291 | 357 | 0 | 6,952 |
| 58 University of Delaware | 12,251 | 0 | 3,826 | 947 | 2,578 | 185 | 3,920 | 795 |
| 59 University of Kentucky | 12,172 | 0 | 378 | 227 | 91 | 986 | 0 | 10,490 |
| 60 Univ Alabama Huntsville | 11,918 | 0 | 2,021 | 58 | 2,848 | 4,169 | 327 | 2,495 |
| Total, 1st 60 insts. | 2,134,154 | 146,786 | 145,796 | 223,839 | 545,542 | 291,177 | 228,374 | 552,640 |
| 61 Woods Hole Oceanographic Inst | 11,343 | 8111 | 8541 | 8911 | 2,8541 | 2,3671 | 01 | 3,5661 |
| 62 Univ of Pennsylvania | 10,832 | 0 | 1,696 | 604 | 2,302 | 1,308 | 3,532 | 1,390 |
| 63 Michigan Tech University | 10,366 | 0 | 875 | 922 | 452 | 3,243 | 3,711 | 1,163 |
| 64 Univ of Missouri Columbia | 9,738 | 0 | 644 | 505 | 601 | 927 | 0 | 7,061 |
| 65 Univ of Nebraska-Lincoln | 9,709 | 0 | 345 | 1,001 | 1,574 | 1,531 | 0 | 5,258 |
| 66 University of Iowa | 9,707 | 0 | 1,096 | 2,761 | 527 | 4,399 | 0 | 924 |
| 67 Univ of Massachusetts | 9,239 | 0 | 1,743 | 1,138 | 3,479 | 2,010 | 0 | 869 |
| 68 Univ of Missouri Rolla | 9,207 | 104 | 128 | 697 | 634 | 1,598 | 5,004 | 1,042 |
| 69 Texas Tech University | 8,801 | 5 | 339 | 1,434 | 2,456 | 1,289 | 2,222 | 1,056 |
| 70 University of Oklahoma | 8,735 | 0 | 1,594 | 2,143 | 1,412 | 1,452 | 0 | 2,134 |
| Total, 1st 70 insts. | 2,231,831 | 147,706 | 155,110 | 235,935 | 561,833 | 311,301 | 242,843 | 577,103 |
| 71 Oregon State University | 8,459 | 0 | 31 | 4,604 | 1,048 | 1,180 | 0 | 1,596 |
| 72 University of N Dakota | 8,271 | 0 | 61 | 0 | 1 | 30 | 0 | 8,179 |
| 73 U of Houston | 8,027 | 0 | 2,870 | 1,247 | 1,363 | 1,648 | 0 | 899 |
| 74 Polytechnic University | 7,864 | 208 | 1,241 | 101 | 5,731 | 100 | 358 | 125 |
| 75 Tenn Technological Univ | 7,832 | 0 | 99 | 1,708 | 1,361 | 4,218 | 0 | 446 |
| 76 Univ of Cal Davis | 7,794 | 0 | 928 | 1,476 | 2,036 | 2,253 | 0 | 1,101 |
| 77 Syracuse University | 7,560 | 0 | 1,229 | 411 | 4,578 | 939 | 48 | 355 |
| 78 Univ of Cal San Diego | 7,454 | 0 | 0 | 0 | 0 | 5,788 | 0 | 1,666 |
| 79 Vanderbilt University | 7,287 | 0 | 266 | 1,054 | 2,031 | 540 | 3,118 | 278 |
| 80 Brown University | 7,156 | 5121 | 5341 | 5581 | 1,7811 | 1,5271 | 01 | 2,2441 |
| Total, 1st 80 insts. | 2,309,535 | 148,426 | 162,369 | 247,094 | 581,763 | 329,524 | 246,367 | 593,992 |
| 81 Univ of Ark Fayetteville | 7,059 | 0 | 2,002 | 551 | 667 | 478 | 0 | 3,361 |
| 82 Univ of South Carolina | 6,974 | 0 | 580 | 1,333 | 1,539 | 3,522 | 0 | 0 |
| 83 Yale University | 6,732 | 0 | 1,734 | 0 | 1,431 | 1,653 | 0 | 1,914 |
| 84 University of Idaho | 6,719 | 0 | 264 | 231 | 1,657 | 318 | 634 | 3,615 |
| 85 The University of Alabama | 6,709 | 1,695 | 875 | 415 | 728 | 1,139 | 1,844 | 13 |
| 86 Duke University | 6,492 | 0 | 0 | 671 | 884 | 1,169 | 0 | 3,768 |
| 87 Univ of Alaska Fairbanks | 6,280 | 0 | 0 | 882 | 740 | 569 | 0 | 4,089 |
| 88 SUNY Col of Env Sci & For | 6,240 | 0 | 1,209 | 92 | 0 | 0 | 0 | 4,939 |
| 89 Kans St U - Ag & App Sci | 6,186 | 0 | 424 | 381 | 490 | 348 | 0 | 4,543 |
| 90 Colorado School of Mines | 6,097 | 0 | 738 | 0 | 0 | 0 | 5,065 | 294 |
| Total, 1st 90 insts. | 2,375,023 | 150,121 | 170,195 | 251,650 | 589,899 | 338,720 | 253,910 | 620,528 |
| 91 Washington State Univ | 6,025 | 0 | 538 | 968 | 1,571 | 1,178 | 94 | 1,676 |
| 92 Wayne State University | 5,951 | 0 | 800 | 430 | 708 | 1,457 | 0 | 2,556 |
| 93 University of Pittsburgh | 5,944 | 0 | 1,733 | 885 | 520 | 416 | 2,080 | 310 |
| 94 George Washington Univ | 5,898 | 1,449 | 18 | 143 | 849 | 54 | 91 | 3,294 |
| 95 Ohio University | 5,766 | 0 | 610 | 579 | 3,734 | 490 | 0 | 353 |
| 96 US Naval Postgrad School | 5,775 | 1,750 | 0 | 0 | 1,966 | 1,577 | 219 | 63 |
| 97 Univ of Ill Chicago | 5,486 | 0 | 593 | 1,098 | 1,874 | 1,362 | 0 | 559 |
| 98 Dartmouth College | 5,401E | 3851 | 4061 | 4261 | 1,3431 | 1,1401 | 01 | 1,7011 |
| 99 Clarkson University | 5,381 | 0 | 1,376 | 1,440 | 1,219 | 1,346 | 0 | 0 |
| 100 West Virginia University | 5,381 | 0 | 796 | 1,361 | 528 | 1,808 | 463 | 425 |
| Total, 1st 100 insts. | 2,431,831 | 153,705 | 177,065 | 258,980 | 604,211 | 349,548 | 256,857 | 631,465 |
| Total, all other sampled insts. | 225,585 | 4,969 | 28,552 | 27,625 | 53,061 | 39,437 | 18,527 | 53,414 |
| Estimated total non-sampled insts. | 24,335 | 1,211 | 555 | 3,141 | 7,338 | 4,253 | 541 | 7,296 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-49. Federally financed R&D expenditures in engineering subfields at universities and colleges: fiscal year 1990

[Dollars in thousands]

Page 1 of 2

| Institution ranking | Engineering subfields | | | | | | | |
|----------------------------------|-----------------------|-----------------------------|----------|---------|-----------------|-----------------|--|---------|
| | Total | Aero/ astro- nautical | Chemical | Civil | Elec- trical | Mechan- ical | Metal- lurgical and materials | Other |
| Total, all institutions | 1,534,931 | 123,477 | 99,937 | 119,250 | 430,589 | 238,464 | 143,822 | 379,394 |
| 1 Johns Hopkins Univ | 200,964 | 20,254 | 4,171 | 1,329 | 62,696 | 41,681 | 505 | 70,328 |
| 2 Mass Inst of Technology | 85,559 | 9,251 | 9,279 | 6,812 | 28,097 | 9,584 | 9,284 | 13,252 |
| 3 Pennsylvania State Univ | 74,737 | 1,213 | 724 | 1,728 | 2,348 | 7,224 | 6,496 | 55,004 |
| 4 Stanford University | 69,015 | 5,386 | 2,701 | 3,428 | 27,112 | 8,323 | 0 | 22,065 |
| 5 Georgia Institute of Tech | 65,901 | 6,563 | 3,035 | 2,196 | 37,716 | 8,931 | 1,062 | 6,398 |
| 6 Univ of Ill Urbana | 42,064 | 762 | 734 | 4,867 | 7,415 | 3,393 | 14,709 | 10,184 |
| 7 Utah State University | 38,495 | 0 | 0 | 1,922 | 35,420 | 369 | 0 | 784 |
| 8 New Mexico State Univ | 32,984 | 25,616 | 351 | 1861 | 6,671 | 3581 | 0 | 1181 |
| 9 University of Michigan | 31,447 | 1,618 | 1,686 | 2,852 | 12,683 | 4,112 | 2,831 | 5,665 |
| 10 Univ of Cal Berkeley | 29,399 | 88 | 1,254 | 2,315 | 17,218 | 2,658 | 2,930 | 2,936 |
| Total, 1st 10 insts. | 670,565 | 70,75 | 23,619 | 27,635 | 237,376 | 86,633 | 37,817 | 186,734 |
| 11 Univ of Texas at Austin | 26,031 | 2,380 | 2,388 | 2,653 | 2,649 | 12,255 | 1,247 | 2,459 |
| 12 Univ of Wis-Madison | 24,474 | 0 | 2,407 | 328 | 4,463 | 721 | 2,499 | 14,056 |
| 13 University of Dayton | 24,163 | 2,834 | 67 | 321 | 1,058 | 7,447 | 9,509 | 2,877 |
| 14 Cornell University | 22,780 | 2,656 | 1,340 | 1,409 | 4,141 | 1,260 | 3,744 | 8,230 |
| 15 VA Polytech Inst & St U | 22,304 | 1,826 | 878 | 1,199 | 2,924 | 5,838 | 2,587 | 7,052 |
| 16 Univ. Of Tennessee System | 19,355 | 768 | 303 | 5,581 | 1,272 | 434 | 474 | 10,523 |
| 17 University of Rochester | 19,203 | 0 | 238 | 0 | 1,508 | 13,955 | 0 | 3,502 |
| 18 Univ of South Florida | 18,910 | 0 | 39 | 61 | 18,732 | 78 | 0 | 0 |
| 19 Univ of Cal Santa Barbara | 18,807 | 0 | 1,764 | 0 | 6,503 | 1,158 | 6,383 | 2,999 |
| 20 Univ of Southern Cal | 18,427 | 2,613 | 683 | 964 | 7,924 | 288 | 1,172 | 4,783 |
| Total, 1st 20 insts. | 885,019 | 83,878 | 33,726 | 40,151 | 288,550 | 130,067 | 65,432 | 243,215 |
| 21 Purdue University | 18,301 | 1,280 | 1,143 | 1,654 | 4,248 | 3,114 | 1,332 | 5,530 |
| 22 Univ of Cal Los Angeles | 16,873 | 0 | 770 | 1,040 | 5,985 | 6,310 | 1,381 | 1,387 |
| 23 Rensselaer Polytech Inst | 16,370 | 0 | 971 | 1,316 | 4,702 | 4,114 | 3,059 | 2,208 |
| 24 Univ of MD College Park | 16,336 | 845 | 1,577 | 583 | 5,566 | 2,069 | 0 | 5,696 |
| 25 California Inst of Tech | 15,186 | 3,344 | 1,477 | 512 | 1,786 | 576 | 833 | 6,658 |
| 26 M C State Univ at Raleigh | 15,077 | 0 | 1,764 | 596 | 4,495 | 3,121 | 3,986 | 1,115 |
| 27 University of Florida | 14,765 | 1,077 | 1,164 | 231 | 2,221 | 593 | 4,252 | 5,228 |
| 28 Ohio State University | 13,781 | 788 | 539 | 757 | 4,325 | 2,871 | 1,553 | 2,948 |
| 29 Univ. of Colorado | 13,704 | 4,289 | 787 | 2,738 | 4,637 | 1,253 | 0 | 0 |
| 30 Texas A & M University | 13,388 | 1,536 | 922 | 1,969 | 2,441 | 2,075 | 702 | 3,743 |
| Total, 1st 30 insts. | 1,038,801 | 97,037 | 44,840 | 51,547 | 328,956 | 156,163 | 82,530 | 277,728 |
| 31 Carnegie-Mellon Univ | 13,040 | 0 | 985 | 957 | 3,555 | 1,259 | 2,688 | 3,596 |
| 32 Case Western Reserve Univ | 12,638 | 0 | 2,004 | 534 | 2,027 | 3,243 | 2,725 | 2,105 |
| 33 Princeton University | 11,931 | 6,686 | 1,281 | 1,260 | 2,697 | 0 | 0 | 7 |
| 34 Columbia Univ Main Div | 11,777 | 0 | 2,265 | 396 | 5,984 | 384 | 11 | 2,737 |
| 35 Colorado State University | 11,768 | 0 | 625 | 8,661 | 926 | 724 | 0 | 832 |
| 36 Iowa St U of Sci & Tech | 11,496 | 291 | 214 | 1,406 | 787 | 791 | 6,131 | 1,876 |
| 37 University of Washington | 11,359 | 1,572 | 1,020 | 1,762 | 1,535 | 1,182 | 844 | 3,444 |
| 38 University of Minnesota | 10,781 | 674 | 5,249 | 1,267 | 1,623 | 1,344 | 214 | 410 |
| 39 University of New Mexico | 10,689 | 0 | 128 | 7,633 | 245 | 171 | 2,512 | 0 |
| 40 Northwestern University | 10,195 | 0 | 952 | 1,551 | 397 | 507 | 2,537 | 4,251 |
| Total, 1st 40 insts. | 1,154,475 | 106,260 | 59,563 | 76,974 | 348,732 | 165,768 | 100,192 | 296,986 |
| 41 University of Virginia | 9,776 | 790 | 383 | 293 | 1,512 | 798 | 3,680 | 2,320 |
| 42 Woods Hole Oceanographic Inst | 9,714 | 6961 | 7561 | 7671 | 2,534 | 1,883 | 0 | 3,078 |
| 43 Louisiana State Univ | 8,345 | 0 | 872 | 191 | 74 | 484 | 5,600 | 1,124 |
| 44 Mississippi State Univ | 8,199 | 687 | 424 | 59 | 1,021 | 232 | 0 | 5,776 |
| 45 Univ Alabama Huntsville | 8,108 | 0 | 1,836 | 38 | 1,756 | 2,763 | 195 | 1,520 |
| 46 SUNY at Buffalo | 7,900 | 0 | 1,139 | 5,191 | 737 | 679 | 0 | 154 |
| 47 University of Utah | 7,872 | 0 | 1,120 | 56 | 179 | 3,423 | 2,279 | 815 |
| 48 Lehigh University | 7,353 | 0 | 555 | 3,058 | 585 | 1,447 | 1,688 | 20 |
| 49 University of Arizona | 6,989 | 1,301 | 150 | 508 | 577 | 0 | 1,881 | 2,572 |
| 50 Oklahoma State University | 6,931 | 0 | 2,660 | 1,128 | 494 | 753 | 0 | 1,896 |
| Total, 1st 50 insts. | 1,235,662 | 109,734 | 69,458 | 88,263 | 358,201 | 178,230 | 115,515 | 316,261 |

See explanatory information, if any, and SOURCE(S) at end of table.

1.8

Table B-49. Federally financed R&D expenditures in engineering subfields at universities and colleges: fiscal year 1990

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Engineering subfields | | | | | | | |
|---------------------------------------|-----------------------|-----------------------------|----------|---------|-----------------|-----------------|--|---------|
| | Total | Aero/ astro- nautical | Chemical | Civil | Elec- trical | Mechan- ical | Metal- lurgical and materials | Other |
| 51 University of Cincinnati | 6,903 | 984 | 268 | 3,107 | 1,344 | 570 | 355 | 275 |
| 52 University of N Dakota | 6,793 | 0 | 32 | 0 | 0 | 20 | 0 | 6,741 |
| 53 Univ of Pennsylvania | 6,685 | 0 | 1,333 | 122 | 1,189 | 710 | 2,558 | 773 |
| 54 Brown University | 5,704 | 4091 | 4401 | 4511 | 1,4931 | 1,1061 | 01 | 1,8051 |
| 55 US Naval Postgrad School | 5,575 | 1,750 | 0 | 0 | 1,966 | 1,577 | 219 | 63 |
| 56 Oregon State University | 5,445 | 0 | 4 | 3,684 | 705 | 505 | 0 | 547 |
| 57 Univ of Cal San Diego | 5,304 | 0 | 0 | 0 | 0 | 4,972 | 0 | 332 |
| 58 Polytechnic University | 5,218 | 200 | 850 | 70 | 3,638 | 70 | 300 | 90 |
| 59 Vanderbilt University | 5,018 | 0 | 15 | 560 | 771 | 442 | 3,006 | 224 |
| 60 Auburn University | 5,017 | 2,572 | 935 | 116 | 352 | 923 | 117 | 2 |
| Total, 1st 60 insts. | 1,293,324 | 115,649 | 73,335 | 96,373 | 369,659 | 189,125 | 122,070 | 327,113 |
| 61 Arizona State University | 4,933 | 0 | 614 | 339 | 2,010 | 1,812 | 0 | 158 |
| 62 Michigan State University | 4,922 | 0 | 0 | 0 | 0 | 0 | 0 | 4,922 |
| 63 Duke University | 4,899 | 0 | 0 | 381 | 455 | 906 | 0 | 3,157 |
| 64 Univ of Massachusetts | 4,752 | 0 | 1,120 | 374 | 2,492 | 629 | 0 | 137 |
| 65 George Washington Univ | 4,715 | 1,415 | 18 | 94 | 535 | 54 | 91 | 2,508 |
| 66 Clemson University | 4,703 | 0 | 412 | 441 | 550 | 1,275 | 0 | 2,025 |
| 67 Yale University | 4,652 | 0 | 1,463 | 0 | 748 | 1,243 | 0 | 1,198 |
| 68 University of Iowa | 4,412 | 0 | 202 | 1,447 | 307 | 2,186 | 0 | 270 |
| 69 University of Delaware | 4,305 | 0 | 1,140 | 361 | 1,355 | 18 | 1,431 | 0 |
| 70 Rutgers the St Univ of NJ | 4,262 | 0 | 755 | 56 | 115 | 2,275 | 774 | 287 |
| Total, 1st 70 insts. | 1,339,879 | 117,064 | 79,059 | 99,866 | 378,226 | 199,523 | 124,366 | 341,775 |
| 71 Univ of Cal Davis | 4,149 | 0 | 549 | 554 | 882 | 1,663 | 0 | 501 |
| 72 University of Idaho | 4,101 | 0 | 62 | 70 | 1,282 | 121 | 320 | 2,246 |
| 73 Dartmouth College | 4,0651 | 2921 | 3141 | 3221 | 1,0611 | 7871 | 01 | 1,2891 |
| 74 Drexel University | 4,005 | 0 | 13 | 448 | 1,909 | 886 | 634 | 115 |
| 75 University of Denver | 3,842 | 0 | 294 | 0 | 1,715 | 1,833 | 0 | 0 |
| 76 Syracuse University | 3,738 | 0 | 385 | 275 | 2,853 | 211 | 14 | 0 |
| 77 NC Ag & Tech State Univ | 3,644 | 0 | 145 | 38 | 575 | 1,284 | 0 | 1,602 |
| 78 Old Dominion U Res Fdn | 3,520 | 0 | 0 | 167 | 1,242 | 2,092 | 0 | 19 |
| 79 Michigan Tech University | 3,490 | 0 | 236 | 174 | 111 | 1,657 | 1,013 | 299 |
| 80 Northeastern University | 3,469 | 0 | 125 | 81 | 2,826 | 85 | 0 | 352 |
| Total, 1st 80 insts. | 1,377,902 | 117,356 | 81,182 | 101,995 | 392,682 | 210,142 | 126,347 | 348,198 |
| 81 University of Connecticut | 3,450 | 0 | 59 | 107 | 795 | 163 | 2,326 | 0 |
| 82 San Diego State Univ | 3,318 | 86 | 0 | 44 | 3,055 | 133 | 0 | 0 |
| 83 Brigham Young University | 3,313 | 0 | 2,242 | 486 | 276 | 108 | 0 | 201 |
| 84 West Virginia University | 3,264 | 0 | 505 | 606 | 453 | 1,135 | 352 | 213 |
| 85 Mercer University | 3,259 | 943 | 159 | 0 | 897 | 853 | 0 | 407 |
| 86 University of Pittsburgh | 2,967 | 0 | 760 | 319 | 377 | 315 | 1,175 | 21 |
| 87 The University of Alabama | 2,871 | 1,388 | 257 | 0 | 258 | 405 | 554 | 9 |
| 88 University of Kentucky | 2,821 | 0 | 276 | 140 | 17 | 711 | 0 | 1,677 |
| 89 Univ of Missouri Rolla | 2,774 | 42 | 74 | 204 | 133 | 295 | 2,026 | 0 |
| 90 U of Houston | 2,754 | 0 | 1,009 | 487 | 337 | 539 | 0 | 382 |
| Total, 1st 90 insts. | 1,408,693 | 119,815 | 86,523 | 104,388 | 399,280 | 214,799 | 132,780 | 351,108 |
| 91 Rice University | 2,677 | 0 | 342 | 80 | 1,332 | 310 | 0 | 613 |
| 92 Texas Tech University | 2,668 | 0 | 0 | 584 | 1,585 | 162 | 0 | 337 |
| 93 Univ of Alaska Fairbanks | 2,662 | 0 | 0 | 239 | 201 | 154 | 0 | 2,068 |
| 94 Univ of Texas at El Paso | 2,616 | 0 | 0 | 294 | 558 | 967 | 797 | 0 |
| 95 Univ of Cal Irvine | 2,608 | 0 | 0 | 425 | 568 | 1,573 | 0 | 42 |
| 96 Colorado School of Mines | 2,576 | 0 | 321 | 0 | 0 | 0 | 2,060 | 195 |
| 97 N Mex Inst Mining & Tech | 2,519 | 0 | 408 | 0 | 0 | 0 | 885 | 1,226 |
| 98 University of Kansas | 2,478 | 252 | 128 | 629 | 753 | 520 | 0 | 196 |
| 99 Boston University | 2,476 | 71 | 0 | 0 | 862 | 158 | 0 | 1,385 |
| 100 Univ of Ill Chicago | 2,335 | 0 | 340 | 595 | 721 | 679 | 0 | 0 |
| Total, 1st 100 insts. | 1,434,308 | 120,138 | 88,062 | 107,234 | 405,860 | 219,322 | 136,522 | 357,170 |
| Total, all other sampled insts. | 91,624 | 2,348 | 11,767 | 11,546 | 20,249 | 17,305 | 6,952 | 21,457 |
| Estimated total non-sampled insts. | 8,999 | 991 | 108 | 470 | 4,480 | 1,837 | 348 | 767 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-50. R&D expenditures in the physical sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Physical sciences total | | | | 1990 subfields | | | |
|------------------------------|-------------------------|-----------|-----------|-----------|----------------|-----------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | Astronomy | Chemistry | Physics | Other |
| Total, all institutions | 1,781,108 | 1,640,754 | 1,544,962 | 1,389,007 | 165,464 | 649,432 | 834,258 | 131,953 |
| 1 Mass Inst of Technology | 98,119 | 89,915 | 84,630 | 78,800 | 9,336 | 17,109 | 71,674 | 0 |
| 2 Johns Hopkins Univ | 93,344 | 85,843 | 96,702 | 79,371 | 9,597 | 5,435 | 69,861 | 8,451 |
| 3 University of Arizona | 61,723 | 49,968 | 46,661 | 40,538 | 23,065 | 5,034 | 18,532 | 15,092 |
| 4 Univ of MD College Park | 56,256 | 46,904 | 42,756 | 40,906 | 0 | 10,977 | 29,200 | 16,079 |
| 5 Stanford University | 53,844 | 50,733 | 56,626 | 45,122E | 0 | 10,752 | 6,492 | 36,600 |
| 6 Univ of Cal Berkeley | 50,711 | 44,998 | 42,434 | 37,824 | 6,342 | 13,804 | 30,565 | 0 |
| 7 Cornell University | 44,887 | 43,228 | 42,461 | 42,839 | 4,822 | 10,042 | 27,415 | 2,608 |
| 8 California Inst of Tech | 42,034 | 39,377 | 37,495 | 37,648 | 8,665 | 10,667 | 22,702 | 0 |
| 9 Univ of Texas at Austin | 40,985 | 35,845 | 33,590 | 32,807 | 8,717 | 13,259 | 19,009 | 0 |
| 10 Univ of Cal San Diego | 30,989 | 24,540 | 25,144 | 23,740 | 13,146 | 8,120 | 9,377 | 346 |
| Total, 1st 10 insts. | 572,892 | 511,351 | 508,499 | 459,595 | 83,690 | 105,199 | 304,827 | 79,176 |
| 11 Univ of Wis-Madison | 29,538 | 27,197 | 25,587 | 25,357 | 4,020 | 8,937 | 11,963 | 4,618 |
| 12 Harvard University | 28,340 | 25,713 | 20,204 | 18,933 | 4,627 | 13,114 | 10,363 | 236 |
| 13 University of Chicago | 26,088 | 24,329 | 22,059 | 21,747 | 3,208 | 9,331 | 13,189 | 360 |
| 14 Univ of Ill Urbana | 23,258 | 23,307 | 22,034 | 21,775 | 1,330 | 9,243 | 12,685 | 0 |
| 15 Univ of Cal Los Angeles | 23,136 | 21,764 | 20,776 | 20,937 | 1,137 | 11,217 | 10,782 | 0 |
| 16 Princeton University | 22,819 | 20,191 | 19,273 | 17,889 | 2,744 | 9,099 | 10,976 | 0 |
| 17 Indiana University | 22,532 | 22,059 | 21,388 | 18,579 | 429 | 7,344 | 14,759 | 0 |
| 18 Univ of Colorado | 21,438 | 21,124 | 18,240 | 17,109 | 8,062 | 6,041 | 7,151 | 184 |
| 19 Michigan State University | 20,898 | 21,121 | 19,489 | 16,648 | 0 | 3,138 | 17,760 | 0 |
| 20 SUNY at Stony Brook | 20,878 | 18,224 | 18,526 | 12,936 | 802 | 4,897 | 15,038 | 141 |
| Total, 1st 20 insts. | 811,817 | 736,380 | 716,075 | 651,505 | 110,049 | 187,560 | 429,493 | 84,715 |
| 21 U of Houston | 19,290 | 16,033 | 9,771 | 8,224 | 0 | 4,724 | 11,149 | 3,417 |
| 22 Univ of Hawaii-Manoa | 17,953 | 17,090 | 14,829 | 12,591 | 14,231 | 2,062 | 1,660 | 0 |
| 23 Texas A & M University | 17,538 | 19,721 | 15,226 | 15,978 | 0 | 8,046 | 7,209 | 2,283 |
| 24 University of Iowa | 17,498 | 13,114 | 11,449 | 10,402 | 1,275 | 4,294 | 11,476 | 453 |
| 25 Rutgers the St Univ of NJ | 17,273 | 16,480 | 12,519 | 10,027 | 0 | 7,812 | 9,461 | 0 |
| 26 Pennsylvania State Univ | 16,625 | 14,687 | 13,143 | 11,352 | 3,318 | 9,148 | 3,365 | 794 |
| 27 University of Minnesota | 16,577 | 14,423 | 12,530 | 12,508 | 1,412 | 6,663 | 8,225 | 277 |
| 28 Columbia Univ Main Div | 16,361 | 13,718 | 14,263 | 14,676 | 2,977 | 5,858 | 1,618 | 5,908 |
| 29 Univ of Pennsylvania | 15,494 | 15,004 | 14,648 | 14,775 | 97 | 8,077 | 7,320 | 0 |
| 30 Yale University | 15,391 | 15,059 | 15,585 | 13,315 | 1,090 | 6,037 | 8,264 | 0 |
| Total, 1st 30 insts. | 981,817 | 891,709 | 850,038 | 775,353 | 134,449 | 250,281 | 499,240 | 97,847 |
| 31 University of Washington | 15,333 | 13,381 | 12,021 | 12,641 | 1,491 | 6,057 | 7,785 | 0 |
| 32 University of Michigan | 15,329 | 15,747 | 15,729 | 15,156 | 435 | 3,735 | 9,818 | 1,341 |
| 33 Georgia Institute of Tech | 15,314 | 20,753 | 15,205 | 7,955 | 316 | 5,215 | 9,783 | 0 |
| 34 Univ of Cal Santa Barbara | 15,216 | 14,866 | 14,397 | 13,701 | 0 | 4,399 | 8,529 | 2,288 |
| 35 Arizona State University | 14,490 | 12,340 | 10,408 | 8,090 | 215 | 7,967 | 3,043 | 3,265 |
| 36 Purdue University | 14,467 | 13,665 | 13,695 | 11,882 | 0 | 8,672 | 5,795 | 0 |
| 37 Florida State University | 13,839 | 13,089 | 9,324 | 9,141 | 0 | 5,345 | 8,494 | 0 |
| 38 Univ of Alaska Fairbanks | 13,761 | 12,878 | 11,323E | 6,352 | 4,760 | 8,066 | 5,967 | 2,228 |
| 39 University of Rochester | 13,329 | 11,307 | 10,806 | 10,953 | 587 | 6,537 | 6,205 | 0 |
| 40 Univ of Massachusetts | 12,984 | 12,633 | 14,970 | 12,236 | 0 | 9,245 | 3,673 | 66 |
| Total, 1st 40 insts. | 1,125,879 | 1,032,368 | 977,916 | 883,460 | 142,253 | 308,259 | 568,332 | 107,035 |
| 41 University of Pittsburgh | 12,904 | 10,952 | 9,998 | 10,524 | 613 | 5,832 | 5,139 | 1,320 |
| 42 Univ of Cal Santa Cruz | 12,887 | 12,234 | 10,241 | 11,555 | 7,578 | 1,640 | 3,482 | 187 |
| 43 Ohio State University | 12,802 | 12,222 | 12,524 | 10,089 | 309 | 6,225 | 6,268 | 0 |
| 44 Univ of Cal Irvine | 12,300 | 11,425 | 10,846 | 10,188 | 19 | 4,835 | 7,317 | 129 |
| 45 University of Oregon | 12,114 | 9,589 | 9,474 | 8,468 | 0 | 6,760 | 5,354 | 0 |
| 46 University of Florida | 11,804 | 11,653 | 10,751 | 10,726 | 1,232 | 5,396 | 5,157 | 19 |
| 47 Northwestern University | 11,770 | 11,884 | 10,174 | 9,087 | 0 | 7,219 | 4,541 | 10 |
| 48 Rockefeller University | 11,661 | 9,518 | 9,433 | 9,013 | 0 | 9,248 | 2,413 | 0 |
| 49 University of Virginia | 11,212 | 10,528 | 9,068 | 8,664 | 651 | 5,281 | 5,280 | 0 |
| 50 Univ Alabama Huntsville | 11,024 | 9,193 | 8,381 | 4,306 | 0 | 4,317 | 6,527 | 180 |
| Total, 1st 50 insts. | 1,246,357 | 1,141,566 | 1,078,806 | 976,080 | 152,655 | 365,012 | 619,810 | 108,880 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-50. R&D expenditures in the physical sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Physical sciences total | | | | 1990 subfields | | | |
|------------------------------------|-------------------------|-----------|-----------|-----------|----------------|-----------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | Astronomy | Chemistry | Physics | Other |
| 51 University of Notre Dame | 10,735 | 11,041 | 11,418 | 8,518 | 0 | 6,348 | 4,387 | 0 |
| 52 Case Western Reserve Univ | 10,022E | 10,164 | 9,789 | 8,715 | 0E | 8,252E | 1,770E | 0E |
| 53 Univ. Of Tennessee System | 9,780 | 10,720 | 8,851 | 6,388 | 19 | 4,145 | 5,616 | 0 |
| 54 VA Polytech Inst & St U | 9,710 | 8,378 | 6,916 | 6,745 | 0 | 6,321 | 2,890 | 499 |
| 55 Louisiana State Univ | 9,164 | 8,781 | 7,756 | 7,103 | 0 | 4,348 | 4,454 | 362 |
| 56 Duke University | 9,085 | 7,864 | 5,942 | 5,979 | 0 | 2,974 | 6,111 | 0 |
| 57 Boston University | 8,956 | 6,453 | 5,373 | 4,501 | 1,083 | 1,564 | 5,531 | 778 |
| 58 Rice University | 8,470 | 7,449 | 6,964 | 7,185I | 2,451 | 3,337 | 2,682 | 0 |
| 59 Univ of Ill Chicago | 8,204 | 7,005 | 7,547 | 6,785 | 0 | 4,494 | 3,710 | 0 |
| 60 University of Utah | 8,115 | 8,633 | 7,879 | 7,512 | 0 | 5,089 | 3,026 | 0 |
| Total, 1st 60 insts. | 1,338,598 | 1,228,054 | 1,157,241 | 1,045,511 | 156,208 | 411,884 | 659,987 | 110,519 |
| 61 Wayne State University | 7,900 | 7,230 | 5,828 | 4,585 | 0 | 5,455 | 2,445 | 0 |
| 62 Univ of Cal Davis | 7,851 | 7,346 | 6,741 | 5,685 | 0 | 3,582 | 4,269 | 0 |
| 63 Univ of Central Florida | 7,693 | 5,234 | 165 | 1,141 | 6,935 | 484 | 274 | 0 |
| 64 Univ of Southern Cal | 7,463 | 6,107 | 5,549 | 4,748 | 102 | 5,667 | 1,694 | 0 |
| 65 Carnegie-Mellon Univ | 7,203 | 7,169 | 7,122 | 5,959 | 0 | 3,239 | 3,338 | 626 |
| 66 SUNY at Buffalo | 6,952 | 6,413 | 5,651 | 4,732 | 0 | 4,770 | 1,564 | 618 |
| 67 University of Delaware | 6,869 | 6,397 | 5,844 | 3,390 | 0 | 2,381 | 1,321 | 3,167 |
| 68 University of Georgia | 6,706 | 6,239 | 5,624 | 4,219 | 0 | 4,453 | 2,253 | 0 |
| 69 Vanderbilt University | 6,681 | 7,067 | 5,984 | 5,169 | 0 | 1,462 | 3,219 | 0 |
| 70 University of Kansas | 6,635 | 5,710 | 4,420 | 3,433 | 0 | 5,450 | 1,045 | 140 |
| Total, 1st 70 insts. | 1,410,551 | 1,292,966 | 1,208,149 | 1,087,545 | 163,245 | 448,827 | 683,409 | 115,070 |
| 71 Washington University | 6,554 | 6,475 | 5,305 | 4,598 | 0 | 3,436 | 3,118 | 0 |
| 72 Univ of NC at Chapel Hill | 6,481 | 6,508 | 5,782 | 4,738 | 0 | 5,310 | 1,171 | 0 |
| 73 Rensselaer Polytech Inst | 6,263 | 5,826 | 5,067 | 3,502 | 0 | 4,639 | 1,624 | 0 |
| 74 Brown University | 6,162 | 5,440 | 5,988 | 5,726 | 0 | 2,636 | 3,526 | 0 |
| 75 Syracuse University | 5,968 | 5,039 | 4,860 | 4,647 | 0 | 2,861 | 2,986 | 121 |
| 76 Univ of South Carolina | 5,710 | 6,376 | 6,273 | 6,196 | 0 | 4,307 | 1,261 | 142 |
| 77 Univ of New Hampshire | 5,668 | 5,176 | 6,367 | 5,640 | 0 | 330 | 480 | 4,858 |
| 78 N C State Univ at Raleigh | 5,611 | 5,488 | 4,557 | 4,000 | 0 | 1,103 | 3,989 | 519 |
| 79 CUNY City College | 5,423 | 5,559 | 4,752 | 4,998 | 0 | 2,268 | 3,155 | 0 |
| 80 Iowa St U of Sci & Tech | 5,396 | 4,276 | 3,224 | 4,631 | 69 | 3,851 | 1,476 | 0 |
| Total, 1st 80 insts. | 1,469,787 | 1,349,129 | 1,260,324 | 1,136,021 | 163,314 | 479,568 | 706,195 | 120,710 |
| 81 Univ of Texas at Dallas | 5,314 | 5,738 | 5,678 | 6,172 | 0 | 906 | 4,408 | 0 |
| 82 Lehigh University | 5,238 | 5,585 | 6,043 | 5,892 | 0 | 3,770 | 1,468 | 0 |
| 83 University of Oklahoma | 5,030 | 5,276 | 5,615 | 5,319 | 0 | 3,287 | 1,743 | 0 |
| 84 Oklahoma State University | 4,837 | 3,811 | 7,861 | 4,109 | 0 | 1,272 | 2,634 | 931 |
| 85 University of Akron | 4,748 | 4,257 | 3,086 | 3,062 | 0 | 2,001 | 131 | 2,616 |
| 86 University of Cincinnati | 4,669 | 5,643 | 4,859 | 4,711 | 0 | 3,605 | 1,064 | 0 |
| 87 Colorado State University | 4,658 | 4,832 | 3,932 | 4,543 | 0 | 3,683 | 975 | 0 |
| 88 Univ of Nebraska-Lincoln | 4,642 | 4,861 | 4,008 | 4,122 | 23 | 2,658 | 1,961 | 0 |
| 89 Emory University | 4,631 | 4,038 | 3,257 | 2,726 | 0 | 4,228 | 403 | 0 |
| 90 Utah State University | 4,431 | 5,662 | 6,050 | 2,971 | 0 | 1,222 | 3,209 | 0 |
| Total, 1st 90 insts. | 1,517,985 | 1,398,832 | 1,312,711 | 1,179,648 | 163,337 | 506,200 | 724,191 | 124,257 |
| 91 Montana State University | 4,410 | 4,305 | 4,007 | 3,570I | 0 | 2,178 | 2,030 | 202 |
| 92 Catholic Univ of America | 4,305 | 3,972 | 3,662 | 3,420 | 0 | 667 | 3,638 | 0 |
| 93 UT MD Anderson Cancer Ctr | 4,106 | 3,606 | 3,347 | 2,375 | 0 | 0 | 4,106 | 0 |
| 94 University of Mississippi | 4,091 | 1,006 | 750 | 960 | 0 | 596 | 3,495 | 0 |
| 95 Univ of Cal Riverside | 4,044 | 4,146 | 5,096 | 4,202 | 0 | 2,076 | 1,968 | 0 |
| 96 Georgetown University | 3,998 | 4,201 | 3,125 | 2,854 | 0 | 3,860 | 65 | 73 |
| 97 University of Connecticut | 3,937 | 3,975 | 8,525 | 6,728 | 0 | 2,022 | 1,642 | 273 |
| 98 The University of Alabama | 3,910 | 2,625 | 2,148 | 2,122 | 438 | 2,195 | 1,272 | 5 |
| 99 Oregon Grad Inst Sci/Tech | 3,784 | 3,235 | 3,927 | 3,239 | 0 | 2,300 | 1,484 | 0 |
| 100 Auburn University | 3,778 | 1,713 | 1,533 | 1,267 | 0 | 2,280 | 1,498 | 0 |
| Total, 1st 100 insts. | 1,558,348 | 1,431,616 | 1,348,831 | 1,210,385 | 163,775 | 524,374 | 745,389 | 124,810 |
| Total, all other sampled insts. | 202,446 | 190,740 | 196,131 | 178,622 | 1,675 | 110,812 | 83,280 | 6,679 |
| Estimated total non-sampled insts. | 20,314 | 18,398 | 0 | 0 | 14 | 14,246 | 5,589 | 464 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-51. Federally financed R&D expenditures in the physical sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Physical sciences total | | | | 1990 subfields | | | |
|------------------------------|-------------------------|-----------|-----------|-----------|----------------|-----------|---------|--------|
| | 1990 | 1989 | 1988 | 1987 | Astronomy | Chemistry | Physics | Other |
| Total, all institutions | 1,290,163 | 1,192,890 | 1,151,635 | 1,045,904 | 108,835 | 443,402 | 647,466 | 90,459 |
| 1 Johns Hopkins Univ | 91,640 | 84,556 | 95,449 | 77,894 | 9,597 | 4,994 | 68,603 | 8,446 |
| 2 Mass Inst of Technology | 82,688 | 74,896 | 72,927 | 69,502 | 3,578 | 15,129 | 63,981 | 0 |
| 3 Stanford University | 48,995 | 46,501 | 51,859 | 41,631 | 0 | 9,355 | 6,141 | 33,499 |
| 4 Univ of Cal Berkeley | 42,182 | 37,355 | 36,851 | 32,782 | 3,204 | 12,219 | 26,759 | 0 |
| 5 California Inst of Tech | 37,172 | 35,366 | 34,797 | 34,456 | 7,288 | 8,629 | 21,255 | 0 |
| 6 Cornell University | 35,290 | 33,105 | 33,693 | 35,188 | 3,160 | 7,211 | 22,913 | 2,006 |
| 7 University of Arizona | 32,929 | 23,882 | 24,717 | 20,659 | 13,730 | 3,210 | 8,254 | 7,735 |
| 8 Univ of MD College Park | 30,835 | 25,029 | 23,542 | 23,055 | 0 | 4,774 | 14,512 | 11,549 |
| 9 Univ of Cal San Diego | 26,689 | 21,204 | 21,923 | 19,937 | 10,473 | 7,422 | 8,531 | 263 |
| 10 Harvard University | 24,954 | 22,932 | 19,334 | 18,058 | 4,627 | 11,855 | 8,236 | 236 |
| Total, 1st 10 insts. | 453,374 | 404,826 | 415,092 | 373,162 | 55,657 | 84,798 | 249,185 | 63,734 |
| 11 University of Chicago | 23,941 | 22,261 | 20,069 | 19,659 | 2,835 | 8,524 | 12,577 | 5 |
| 12 Univ of Texas at Austin | 22,478 | 20,081 | 20,050 | 19,030 | 4,117 | 6,723 | 11,638 | 0 |
| 13 Univ of Wis-Madison | 22,378 | 20,691 | 19,774 | 18,372 | 3,346 | 6,041 | 10,397 | 2,594 |
| 14 Univ of Cal Los Angeles | 21,485 | 19,521 | 17,988 | 19,296 | 1,077 | 10,216 | 10,192 | 0 |
| 15 Univ. of Colorado | 18,187 | 17,416 | 15,270 | 13,997 | 6,645 | 5,218 | 6,148 | 176 |
| 16 Univ of Ill Urbana | 17,960 | 18,085 | 16,893 | 16,859 | 691 | 6,563 | 10,706 | 0 |
| 17 Indiana University | 17,818 | 18,212 | 18,192 | 15,255 | 271 | 5,225 | 12,322 | 0 |
| 18 Princeton University | 16,288 | 15,037 | 14,636 | 14,563 | 1,827 | 6,104 | 8,357 | 0 |
| 19 Columbia Univ Main Div | 15,497 | 13,152 | 13,699 | 14,409 | 2,974 | 5,540 | 1,618 | 5,365 |
| 20 SUNY at Stony Brook | 15,165 | 12,660 | 12,740 | 10,129 | 659 | 3,816 | 10,690 | 0 |
| Total, 1st 20 insts. | 644,571 | 581,942 | 584,403 | 534,731 | 80,099 | 148,768 | 343,830 | 71,874 |
| 21 Univ of Pennsylvania | 14,495 | 13,675 | 13,250 | 12,735 | 81 | 7,330 | 7,084 | 0 |
| 22 Michigan State University | 14,485 | 14,203 | 13,627 | 10,786 | 0 | 1,992 | 12,493 | 0 |
| 23 University of Iowa | 14,360 | 11,033 | 9,058 | 8,539 | 1,105 | 2,929 | 9,945 | 381 |
| 24 Yale University | 13,814 | 13,283 | 13,887 | 11,957 | 802 | 5,256 | 7,756 | 0 |
| 25 Univ of Cal Santa Barbara | 13,336 | 13,249 | 12,922 | 12,271 | 0 | 3,869 | 7,496 | 1,971 |
| 26 Univ of Hawaii-Manoa | 12,905 | 12,878 | 11,329 | 9,576 | 9,759 | 1,583 | 1,563 | 0 |
| 27 University of Minnesota | 12,563 | 11,064 | 9,265 | 9,901 | 1,231 | 5,857 | 5,475 | 0 |
| 28 University of Washington | 12,548 | 11,169 | 9,911 | 9,663 | 864 | 4,139 | 7,545 | 0 |
| 29 University of Rochester | 12,328 | 10,424 | 9,729 | 10,254 | 375 | 5,998 | 5,955 | 0 |
| 30 Pennsylvania State Univ | 11,153 | 10,202 | 9,569 | 8,688 | 2,594 | 6,429 | 2,128 | 2 |
| Total, 1st 30 insts. | 776,558 | 703,122 | 696,950 | 639,191 | 96,910 | 194,150 | 411,270 | 74,228 |
| 31 Univ of Cal Irvine | 11,110 | 10,613 | 10,482 | 9,888 | 0 | 4,437 | 6,642 | 31 |
| 32 University of Michigan | 10,987 | 11,186 | 12,214 | 12,055 | 382 | 2,786 | 7,401 | 418 |
| 33 Purdue University | 10,897 | 10,536 | 10,776 | 9,610 | 0 | 6,893 | 4,004 | 0 |
| 34 University of Pittsburgh | 10,141 | 8,547 | 8,678 | 8,003 | 460 | 4,721 | 3,802 | 1,158 |
| 35 Rutgers the St Univ of NJ | 9,765 | 10,164 | 6,157 | 5,473 | 0 | 6,016 | 3,749 | 0 |
| 36 U of Houston | 9,692 | 7,928 | 5,480 | 3,773 | 0 | 1,934 | 7,758 | 0 |
| 37 Northwestern University | 9,357 | 9,029 | 7,902 | 7,273 | 0 | 5,465 | 3,892 | 0 |
| 38 Univ Alabama Huntsville | 9,339 | 7,282 | 5,381 | 2,941 | 0 | 3,880 | 5,294 | 165 |
| 39 University of Notre Dame | 8,904 | 9,376 | 10,341 | 7,597 | 0 | 5,667 | 3,237 | 0 |
| 40 University of Oregon | 8,895 | 7,244 | 7,444 | 6,525 | 0 | 5,182 | 3,713 | 0 |
| Total, 1st 40 insts. | 875,645 | 795,027 | 781,805 | 712,329 | 97,752 | 241,131 | 460,762 | 76,000 |
| 41 Georgia Institute of Tech | 8,635 | 11,650 | 8,001 | 4,173 | 178 | 2,941 | 5,516 | 0 |
| 42 Univ of Massachusetts | 8,432 | 8,275 | 10,682 | 8,642 | 0 | 5,494 | 2,938 | 0 |
| 43 Boston University | 8,314 | 6,179 | 5,018 | 4,356 | 1,000 | 1,343 | 5,193 | 778 |
| 44 University of Virginia | 8,134 | 7,722 | 6,847 | 6,320 | 541 | 4,038 | 3,555 | 0 |
| 45 Ohio State University | 8,063 | 8,188 | 8,896 | 7,756 | 228 | 4,085 | 3,750 | 0 |
| 46 Texas A & M University | 8,021 | 8,863 | 8,482 | 7,003 | 0 | 3,716 | 4,106 | 199 |
| 47 Univ of Alaska Fairbanks | 7,950 | 7,298 | 6,417E | 3,568I | 2,471 | 2,13 | 3,593 | 1,673 |
| 48 Duke University | 7,344 | 6,555 | 4,789 | 4,920 | 0 | 1,677 | 3,667 | 0 |
| 49 University of Florida | 7,068 | 6,539 | 6,717 | 6,124 | 955 | 2,905 | 3,208 | 0 |
| 50 Univ of Southern Cal | 7,039 | 5,587 | 5,218 | 4,297 | 65 | 5,358 | 1,616 | 0 |
| Total, 1st 50 insts. | 954,645 | 871,883 | 852,872 | 769,488 | 103,190 | 272,901 | 499,904 | 78,650 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-51. Federally financed R&D expenditures in the physical sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Physical sciences total | | | | 1990 subfields | | | |
|---------------------------------------|-------------------------|-----------|-----------|---------|----------------|-----------|---------|--------|
| | 1990 | 1989 | 1988 | 1987 | Astronomy | Chemistry | Physics | Other |
| 51 Univ of Cal Davis | 6,909 | 6,603 | 5,522 | 4,763 | 0 | 2,996 | 3,913 | 0 |
| 52 Florida State University | 6,799 | 5,319 | 4,018 | 4,150 | 0 | 1,320 | 5,479 | 0 |
| 53 Arizona State University | 6,697 | 7,169 | 5,752 | 4,336 | 12 | 3,626 | 2,196 | 863 |
| 54 Rice University | 6,640 | 5,839 | 5,382 | 5,605 | 2,151 | 2,330 | 2,159 | 0 |
| 55 Univ. Of Tennessee System | 6,408 | 6,292 | 4,938 | 3,934 | 0 | 2,441 | 3,967 | 0 |
| 56 University of Utah | 6,099 | 6,124 | 6,180 | 6,344 | 0 | 3,746 | 2,353 | 0 |
| 57 Vanderbilt University | 6,068 | 6,022 | 4,446 | 3,845 | 0 | 1,138 | 4,930 | 0 |
| 58 Carnegie-Mellon Univ | 5,944 | 6,015 | 6,104 | 4,878 | 0 | 2,770 | 3,079 | 95 |
| 59 Univ of Cal Santa Cruz | 5,810 | 5,694 | 5,066 | 4,949 | 1,220 | 1,398 | 3,042 | 150 |
| 60 Case Western Reserve Univ | 5,807 | 6,932 | 7,076 | 6,396 | 0 | 4,246 | 1,561 | 0 |
| Total, 1st 60 insts. | 1,017,826 | 933,892 | 907,356 | 818,688 | 106,573 | 298,912 | 532,583 | 79,758 |
| 61 Univ of Ill Chicago | 5,607 | 4,880 | 5,144 | 4,853 | 0 | 2,930 | 2,677 | 0 |
| 62 Univ of NC at Chapel Hill | 5,400 | 5,479 | 5,071 | 3,880 | 0 | 4,651 | 749 | 0 |
| 63 Rockefeller University | 5,365 | 4,477 | 3,840 | 4,023 | 0 | 4,331 | 1,034 | 0 |
| 64 Brown University | 5,355 | 4,817 | 5,579 | 5,256 | 0 | 2,254 | 3,101 | 0 |
| 65 Washington University | 5,231 | 5,625 | 4,229 | 3,746 | 0 | 2,759 | 2,472 | 0 |
| 66 Louisiana State Univ | 4,912 | 4,744 | 4,308 | 4,437 | 0 | 1,887 | 2,906 | 119 |
| 67 CUNY City College | 4,905 | 5,001 | 4,171 | 4,729 | 0 | 2,198 | 2,707 | 0 |
| 68 Univ of New Hampshire | 4,738 | 4,497 | 5,732 | 5,131 | 0 | 2,284 | 480 | 3,974 |
| 69 VA Polytech Inst & St U | 4,648 | 4,064 | 3,962 | 4,223 | 0 | 2,522 | 1,872 | 254 |
| 70 University of Delaware | 4,325 | 3,758 | 2,369 | 1,970 | 0 | 1,472 | 920 | 1,933 |
| Total, 1st 70 insts. | 1,068,312 | 981,234 | 951,761 | 860,936 | 106,573 | 324,200 | 551,501 | 86,038 |
| 71 Syracuse University | 4,204 | 3,312 | 3,258 | 3,280 | 0 | 1,945 | 2,141 | 118 |
| 72 SUNY at Buffalo | 4,129 | 3,681 | 3,420 | 3,349 | 0 | 2,955 | 776 | 398 |
| 73 Univ of South Carolina | 3,936 | 3,674 | 3,803 | 3,904 | 0 | 2,992 | 837 | 107 |
| 74 Catholic Univ of America | 3,906 | 3,640 | 3,444 | 3,366 | 0 | 625 | 3,281 | 0 |
| 75 Emory University | 3,872 | 3,135 | 2,829 | 2,473 | 0 | 3,509 | 363 | 0 |
| 76 Univ of Cal Riverside | 3,848 | 3,866 | 4,638 | 3,850 | 0 | 1,890 | 1,958 | 0 |
| 77 M C State Univ at Raleigh | 3,797 | 2,616 | 2,220 | 2,614 | 0 | 630 | 2,900 | 267 |
| 78 Colorado State University | 3,735 | 3,983 | 5,182 | 4,043 | 0 | 2,998 | 737 | 0 |
| 79 Univ of Texas at Dallas | 3,718 | 4,343 | 3,691 | 4,606 | 0 | 802 | 2,916 | 0 |
| 80 University of Mississippi | 3,642 | 845 | 710 | 829 | 0 | 560 | 3,082 | 0 |
| Total, 1st 80 insts. | 1,107,099 | 1,014,329 | 984,956 | 893,250 | 106,573 | 343,106 | 570,492 | 86,928 |
| 81 Georgetown University | 3,212 | 3,322 | 2,286 | 2,254 | 0 | 3,088 | 61 | 63 |
| 82 Utah State University | 3,039 | 3,652 | 4,676 | 2,215 | 0 | 368 | 2,671 | 0 |
| 83 Rensselaer Polytech Inst | 3,016 | 3,993 | 2,542 | 1,863 | 0 | 2,234 | 782 | 0 |
| 84 Univ of Nebraska-Lincoln | 3,008 | 3,506 | 3,227 | 3,005 | 18 | 1,925 | 1,065 | 0 |
| 85 University of Cincinnati | 3,007 | 3,301 | 2,628 | 2,910 | 0 | 2,151 | 856 | 0 |
| 86 Howard University | 2,953 | 2,746 | 2,538 | 2,329 | 0 | 2,811 | 142 | 0 |
| 87 Univ of Strn Mississippi | 2,880 | 2,300 | 1,307 | 1,252 | 0 | 2,850 | 30 | 0 |
| 88 Kans St U - Ag & App Sci | 2,857 | 3,297 | 3,220 | 3,068 | 0 | 937 | 1,920 | 0 |
| 89 Oregon Grad Inst Sci/Tech | 2,811 | 2,410 | 3,286 | 2,404 | 0 | 2,004 | 807 | 0 |
| 90 University of Kansas | 2,788 | 2,457 | 1,548 | 1,524 | 0 | 2,099 | 689 | 0 |
| Total, 1st 90 insts. | 1,136,670 | 1,045,313 | 1,012,214 | 916,074 | 106,591 | 363,573 | 579,515 | 86,991 |
| 91 New York University | 2,745 | 2,784 | 2,778 | 2,683 | 0 | 1,397 | 1,348 | 0 |
| 92 Lehigh University | 2,744 | 2,802 | 2,861 | 2,822 | 0 | 1,745 | 999 | 0 |
| 93 Alabama A & M University | 2,716 | 1,984 | 1,062 | 2,199 | 0 | 62 | 2,592 | 62 |
| 94 Boston College | 2,649 | 2,207 | 2,189 | 1,649 | 0 | 1,856 | 793 | 0 |
| 95 Brandeis University | 2,616 | 2,733 | 2,871 | 2,603 | 0 | 1,410 | 1,206 | 0 |
| 96 University of Georgia | 2,492 | 2,654 | 2,240 | 1,645 | 0 | 1,651 | 841 | 0 |
| 97 Oklahoma State University | 2,485 | 2,315 | 2,142 | 2,128 | 0 | 631 | 1,082 | 772 |
| 98 US Naval Postgrad School | 2,443 | 2,265 | 2,326 | 1,774 | 0 | 0 | 2,443 | 0 |
| 99 University of Denver | 2,417 | 2,246 | 1,029 | 2,398 | 0 | 898 | 1,519 | 0 |
| 100 Dartmouth College | 2,386 | 2,155 | 2,098 | 2,024 | 0 | 1,155 | 1,231 | 0 |
| Total, 1st 100 insts. | 1,162,363 | 1,069,458 | 1,033,810 | 937,999 | 106,591 | 374,378 | 593,569 | 87,825 |
| Total, all other sampled insts. | 117,357 | 113,519 | 117,825 | 107,905 | 2,244 | 61,904 | 50,575 | 2,634 |
| Estimated total non-sampled insts. | 10,443 | 9,913 | 0 | 0 | 0 | 7,120 | 3,322 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-52. Total and federally financed R&D expenditures in chemistry
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 649,432 | 608,029 | 565,293 | 513,115 | 443,402 | 421,712 | 402,724 | 367,765 |
| 1 Mass Inst of Technology | 17,109 | 15,031 | 13,287 | 11,471 | 15,129 | 13,333 | 11,987 | 10,656 |
| 2 Univ of Cal Berkeley | 13,804 | 12,663 | 14,285 | 12,490 | 12,219 | 11,540 | 12,998 | 11,160 |
| 3 Univ of Texas at Austin | 13,259 | 11,484 | 10,943 | 11,420 | 6,723 | 6,120 | 6,443 | 6,405 |
| 4 Harvard University | 13,114 | 11,856 | 9,886 | 8,895 | 11,855 | 10,594 | 9,272 | 8,309 |
| 5 Univ of Cal Los Angeles | 11,217 | 9,855 | 6,519 | 10,099 | 10,216 | 9,024 | 8,885 | 9,414 |
| 6 Univ of MD College Park | 10,977 | 9,732 | 8,545 | 9,258 | 4,774 | 3,844 | 3,793 | 4,073 |
| 7 Stanford University | 10,752 | 10,098 | 10,547 | 8,916 | 9,355 | 8,878 | 9,423 | 7,918 |
| 8 California Inst of Tech | 10,667 | 9,235 | 9,931 | 10,870 | 8,629 | 7,459 | 8,769 | 9,922 |
| 9 Cornell University | 10,042 | 10,217 | 10,472 | 8,397 | 7,211 | 7,458 | 8,269 | 6,753 |
| 10 University of Chicago | 9,331 | 9,333 | 8,046 | 7,514 | 8,524 | 8,621 | 7,235 | 6,499 |
| Total, 1st 10 insts. | 120,272 | 109,504 | 105,461 | 99,330 | 94,635 | 86,871 | 87,074 | 81,109 |
| 11 Rockefeller University | 9,248 | 7,471 | 6,975 | 6,823 | 4,331 | 3,713 | 3,082 | 3,247 |
| 12 Univ of Massachusetts | 9,245 | 7,988 | 5,280 | 7,589 | 5,494 | 3,326 | 3,296 | 5,036 |
| 13 Univ of Ill Urbana | 9,243 | 9,208 | 8,647 | 9,035 | 6,563 | 6,566 | 6,193 | 6,306 |
| 14 Pennsylvania State Univ | 9,148 | 8,616 | 7,739 | 6,072 | 6,429 | 6,515 | 5,957 | 6,915 |
| 15 Princeton University | 9,099 | 8,873 | 8,087 | 6,477 | 6,104 | 5,681 | 5,812 | 5,064 |
| 16 Univ of Wis-Madison | 8,937 | 8,326 | 7,282 | 6,984 | 6,041 | 5,505 | 4,939 | 5,178 |
| 17 Purdue University | 8,872 | 8,769 | 8,615 | 7,992 | 6,893 | 7,102 | 7,120 | 5,978 |
| 18 Case Western Reserve Univ | 8,252 | 8,233 | 7,996 | 7,164 | 4,246 | 5,161 | 5,433 | 5,016 |
| 19 Univ of Cal San Diego | 8,120 | 6,487 | 6,780 | 5,179 | 7,422 | 5,757 | 6,161 | 4,599 |
| 20 Univ of Pennsylvania | 8,077 | 7,760 | 7,292 | 6,741 | 7,330 | 7,046 | 6,337 | 5,653 |
| Total, 1st 20 insts. | 208,313 | 186,235 | 180,154 | 168,486 | 155,488 | 141,243 | 141,404 | 131,641 |
| 21 Texas A & M University | 8,046 | 9,808 | 8,785 | 7,462 | 3,716 | 4,408 | 4,945 | 4,019 |
| 22 Arizona State University | 7,967 | 5,260 | 4,306 | 3,586 | 3,626 | 3,172 | 2,813 | 2,317 |
| 23 Rutgers the St Univ of NJ | 7,812 | 7,905 | 5,926 | 3,913 | 6,016 | 6,572 | 3,442 | 2,525 |
| 24 Indiana University | 7,344 | 7,927 | 7,991 | 6,181 | 3,225 | 6,127 | 6,354 | 4,923 |
| 25 Northwestern University | 7,219 | 7,661 | 6,644 | 6,095 | 5,465 | 5,577 | 4,955 | 4,641 |
| 26 University of Oregon | 6,760 | 5,501 | 5,550 | 4,462 | 5,182 | 4,435 | 4,519 | 3,579 |
| 27 University of Minnesota | 6,663 | 5,863 | 5,232 | 5,426 | 5,857 | 5,054 | 4,156 | 4,395 |
| 28 University of Rochester | 6,537 | 4,762 | 4,437 | 3,545 | 5,998 | 4,327 | 3,936 | 3,275 |
| 29 University of Notre Dame | 6,348 | 6,660 | 7,004 | 5,550 | 5,667 | 5,983 | 6,557 | 5,158 |
| 30 VA Polytech Inst & St U | 6,321 | 5,155 | 4,735 | 4,190 | 2,522 | 2,194 | 2,417 | 2,290 |
| Total, 1st 30 insts. | 279,330 | 252,737 | 240,764 | 218,896 | 204,762 | 189,092 | 185,498 | 168,763 |
| 31 Ohio State University | 6,225 | 6,771 | 7,568 | 5,755 | 4,085 | 4,445 | 5,437 | 4,517 |
| 32 University of Washington | 6,057 | 5,192 | 4,338 | 3,655 | 4,139 | 3,756 | 2,904 | 2,287 |
| 33 Univ. of Colorado | 6,041 | 6,587 | 5,637 | 5,118 | 5,218 | 5,418 | 4,603 | 4,402 |
| 34 Yale University | 6,037 | 5,915 | 6,869 | 5,538 | 5,256 | 5,011 | 5,927 | 4,909 |
| 35 Columbia Univ Main Div | 5,858 | 4,721 | 4,605 | 6,715 | 5,540 | 4,344 | 4,246 | 6,625 |
| 36 University of Pittsburgh | 5,832 | 5,736 | 5,598 | 5,105 | 4,721 | 4,558 | 4,803 | 4,028 |
| 37 Univ of Southern Cal | 5,667 | 4,374 | 3,832 | 3,311 | 5,358 | 3,986 | 3,568 | 2,903 |
| 38 Wayne State University | 5,455 | 5,557 | 4,582 | 3,278 | 1,798 | 2,989 | 2,151 | 1,770 |
| 39 University of Kansas | 5,450 | 4,952 | 3,845 | 2,803 | 2,099 | 2,030 | 1,239 | 1,142 |
| 40 Johns Hopkins Univ | 5,435 | 5,152 | 5,211 | 5,593 | 4,994 | 4,824 | 4,830 | 5,116 |
| Total, 1st 40 insts. | 337,387 | 307,694 | 292,849 | 265,767 | 247,970 | 230,453 | 225,206 | 206,462 |
| 41 University of Florida | 5,396 | 5,061 | 5,030 | 5,690 | 2,905 | 2,820 | 3,168 | 3,486 |
| 42 Florida State University | 5,345 | 5,382 | 4,308 | 3,841 | 1,320 | 1,997 | 1,402 | 1,344 |
| 43 Univ of NC at Chapel Hill | 5,310 | 5,171 | 4,476 | 3,471 | 4,651 | 4,534 | 4,193 | 3,153 |
| 44 University of Virginia | 5,281 | 5,096 | 4,153 | 4,169 | 4,038 | 4,165 | 3,419 | 3,281 |
| 45 Georgia Institute of Tech | 5,215 | 5,380 | 5,989 | 4,889 | 2,941 | 3,020 | 3,574 | 2,565 |
| 46 University of Utah | 5,089 | 5,653 | 4,600 | 4,846 | 3,746 | 3,872 | 3,614 | 4,194 |
| 47 University of Arizona | 4,034 | 4,532 | 3,934 | 3,441 | 3,210 | 3,044 | 3,885 | 2,499 |
| 48 SUNY at Stony Brook | 4,897 | 4,754 | 5,010 | 3,669 | 3,816 | 3,610 | 3,460 | 2,930 |
| 49 Univ of Cal Irvine | 4,835 | 3,910 | 4,534 | 3,341 | 4,437 | 3,685 | 4,376 | 3,386 |
| 50 SUNY at Buffalo | 4,770 | 4,644 | 3,903 | 3,370 | 2,955 | 2,782 | 2,329 | 2,320 |
| Total, 1st 50 insts. | 388,559 | 357,277 | 338,786 | 306,694 | 281,989 | 263,982 | 257,626 | 235,620 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-52. Total and federally financed R&D expenditures in chemistry
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|---------------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 U of Houston | 4,724 | 4,908 | 3,693 | 4,003 | 1,934 | 2,118 | 1,983 | 1,756 |
| 52 Rensselaer Polytech Inst | 4,639 | 4,198 | 3,737 | 2,511 | 2,234 | 2,915 | 1,875 | 1,417 |
| 53 Univ of Ill Chicago | 4,494 | 3,721 | 3,020 | 2,663 | 2,930 | 2,612 | 1,915 | 1,735 |
| 54 University of Georgia | 4,453 | 2,091 | 3,531 | 2,239 | 1,651 | 1,866 | 1,403 | 1,081 |
| 55 Univ of Cal Santa Barbara | 4,399 | 3,714 | 3,539 | 3,872 | 3,869 | 3,242 | 3,196 | 3,526 |
| 56 Louisiana State Univ | 4,348 | 4,698 | 3,834 | 3,446 | 1,887 | 2,264 | 1,769 | 1,251 |
| 57 Univ Alabama Huntsville | 4,317 | 2,972 | 1,493 | 1,396 | 3,880 | 2,414 | 1,059 | 781E |
| 58 Univ of South Carolina | 4,307 | 4,466 | 4,078 | 4,622 | 2,992 | 2,905 | 2,839 | 3,113 |
| 59 University of Iowa | 4,294 | 3,277 | 2,482 | 2,613 | 2,929 | 2,364 | 1,718 | 1,846 |
| 60 Emory University | 4,228 | 3,581 | 2,770 | 2,333 | 3,509 | 2,719 | 2,362 | 2,093 |
| Total, 1st 60 insts. | 432,762 | 396,903 | 370,963 | 336,394 | 309,804 | 289,401 | 277,745 | 254,919 |
| 61 Univ. Of Tennessee System | 4,145 | 4,960 | 3,962 | 2,611 | 2,441 | 2,985 | 2,093 | 1,737 |
| 62 Georgetown University | 3,860 | 3,904 | 2,878 | 2,735 | 3,088 | 3,113 | 2,148 | 2,155 |
| 63 Iowa St U of Sci & Tech | 3,851 | 2,910 | 2,094 | 3,684 | 1,331 | 1,004 | 956 | 1,595 |
| 64 Lehigh University | 3,770 | 3,959 | 4,510 | 4,410 | 1,745 | 1,817 | 1,921 | 1,868 |
| 65 University of Michigan | 3,735 | 3,788 | 3,879 | 3,276 | 2,786 | 3,022 | 3,310 | 2,615 |
| 66 Colorado State University | 3,683 | 4,204 | 4,950 | 3,713 | 2,998 | 3,457 | 4,280 | 3,273 |
| 67 University of Cincinnati | 3,605 | 4,655 | 4,008 | 3,816 | 2,151 | 2,755 | 2,088 | 2,403 |
| 68 Univ of Cal Davis | 3,582 | 3,655 | 2,550 | 2,327 | 5,996 | 3,386 | 2,255 | 1,980 |
| 69 Howard University | 3,513I | 3,424I | 3,333I | 2,240E | 2,811I | 2,614I | 2,416I | 2,216 |
| 70 Washington University | 3,436 | 3,741 | 2,940 | 2,314 | 2,759 | 3,088 | 2,291 | 1,759 |
| Total, 1st 70 insts. | 469,942 | 436,141 | 406,067 | 368,520 | 334,910 | 316,642 | 301,503 | 276,520 |
| 71 Rice University | 3,337 | 3,144 | 2,675 | 2,618I | 2,330 | 2,133 | 1,636 | 1,628I |
| 72 University of Oklahoma | 3,287 | 3,968 | 3,765 | 3,633 | 1,221 | 1,775 | 1,740 | 1,573 |
| 73 Univ of Stmrn Mississippi | 3,266 | 2,807 | 1,691 | 1,847 | 2,850 | 2,285 | 1,198 | 1,250 |
| 74 Carnegie-Mellon Univ | 3,239 | 3,854 | 3,932 | 3,059 | 2,770 | 2,917 | 3,001 | 2,055 |
| 75 Michigan State University | 3,138 | 3,602 | 2,690 | 2,511 | 1,992 | 2,363 | 1,833 | 2,583 |
| 76 Duke University | 2,974 | 2,458 | 2,631 | 2,830 | 1,677 | 1,573 | 1,828 | 2,151 |
| 77 Syracuse University | 2,861 | 2,313 | 2,159 | 2,281 | 1,945 | 1,602 | 1,602 | 1,746 |
| 78 Univ of Nebraska-Lincoln | 2,658 | 2,882 | 2,393 | 2,432 | 1,925 | 2,392 | 1,939 | 1,734 |
| 79 Oregon State University | 2,647 | 3,565 | 3,461 | 2,378 | 1,472 | 1,794 | 1,539 | 1,620 |
| 80 Brown University | 2,636 | 2,546 | 2,505 | 2,468 | 2,254 | 2,228 | 2,416 | 2,363 |
| Total, 1st 80 insts. | 499,985 | 467,280 | 433,969 | 394,577 | 355,346 | 337,704 | 320,235 | 294,223 |
| 81 University of Delaware | 2,381 | 2,795 | 2,781 | 2,766 | 1,472 | 1,747 | 1,921 | 1,672 |
| 82 Texas Tech University | 2,335 | 2,067 | 1,693 | 2,189 | 586 | 618 | 581 | 1,181 |
| 83 CUNY Hunter College | 2,307 | 2,018 | 1,534 | 2,219 | 1,668 | 1,507 | 1,208 | 1,590 |
| 84 Oregon Grad Inst Sci/Tech | 2,300 | 1,995 | 1,766 | 1,340 | 2,004 | 1,700 | 1,540 | 1,176 |
| 85 Boston College | 2,291 | 1,688 | 1,577 | 866 | 1,856 | 1,617 | 1,526 | 827 |
| 86 Auburn University | 2,280 | 740 | 617 | 481 | 361 | 515 | 363 | 257 |
| 87 CUNY City College | 2,268 | 2,055 | 1,624 | 1,142 | 2,198 | 1,959 | 1,535 | 1,092 |
| 88 The University of Alabama | 2,195 | 2,039 | 1,675 | 1,701 | 1,386 | 1,431 | 1,147 | 1,339 |
| 89 Montana State University | 2,178 | 2,176 | 2,221 | 1,954I | 790 | 1,390 | 1,572 | 1,317I |
| 90 Univ of Ark Fayetteville | 2,110 | 1,980 | 2,373 | 1,953 | 948 | 835 | 1,007 | 925 |
| Total, 1st 90 insts. | 522,630 | 486,833 | 451,830 | 411,188 | 368,615 | 351,023 | 332,635 | 305,599 |
| 91 Univ of Cal Riverside | 2,076 | 2,297 | 3,233 | 2,126 | 1,890 | 2,040 | 2,844 | 1,881 |
| 92 Univ of Hawaii-Manoa | 2,062 | 2,316 | 1,606 | 1,425 | 1,583 | 1,990 | 1,431 | 1,367 |
| 93 Polytechnic University | 2,027 | 2,739 | 2,462 | 1,331 | 950 | 600 | 1,705 | 1,086 |
| 94 University of Connecticut | 2,022 | 1,985 | 4,279 | 3,396 | 702 | 695 | 1,098 | 872 |
| 95 University of Akron | 2,001 | 1,815 | 949 | 1,184 | 769 | 201 | 273 | 291 |
| 96 Brandeis University | 1,923 | 2,197 | 2,201 | 1,958I | 1,410 | 1,55 | 1,850 | 1,419I |
| 97 Clemson University | 1,857 | 1,467 | 1,409 | 1,516 | 503 | 35 | 435 | 411 |
| 98 Brigham Young University | 1,855 | 2,320I | 2,062 | 1,729 | 552 | 61 | 722 | 577 |
| 99 New York University | 1,693 | 1,382 | 1,163 | 908 | 1,397 | 1,288 | 1,062 | 819 |
| 100 Clarkson University | 1,680 | 965 | 1,108 | 895 | 893 | 507 | 707 | 725 |
| Total, 1st 100 insts. | 541,826 | 506,316 | 472,302 | 427,656 | 379,264 | 360,866 | 344,762 | 315,047 |
| Total, all other sampled insts. | 93,360 | 88,752 | 92,991 | 85,460 | 57,018 | 53,983 | 57,962 | 52,718 |
| Estimated total non-sampled insts. | 14,246 | 12,961 | 0 | 0 | 7,120 | 6,863 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-53. Total and federally financed R&D expenditures in physics
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 834,258 | 773,673 | 730,435 | 664,619 | 647,466 | 598,065 | 573,726 | 529,730 |
| 1 Mass Inst of Technology | 71,674 | 66,183 | 63,475 | 59,225 | 63,981 | 57,879 | 57,771 | 55,589 |
| 2 Johns Hopkins Univ | 69,861 | 68,645 | 78,741 | 61,936 | 68,603 | 67,707 | 77,885 | 60,947 |
| 3 Univ of Cal Berkeley | 30,565 | 26,457 | 24,249 | 21,463 | 26,759 | 22,874 | 21,167 | 18,860 |
| 4 Univ of MD College Park | 29,200 | 25,257 | 22,126 | 22,351 | 14,512 | 13,007 | 12,089 | 12,571 |
| 5 Cornell University | 27,415 | 25,895 | 25,283 | 29,046 | 22,913 | 21,071 | 20,340 | 24,525 |
| 6 California Inst of Tech | 22,702 | 22,541 | 20,115 | 22,568 | 21,255 | 21,007 | 18,861 | 20,506 |
| 7 Univ of Texas at Austin | 19,009 | 16,047 | 15,190 | 14,444 | 11,638 | 9,995 | 9,898 | 9,091 |
| 8 University of Arizona | 18,532 | 17,873 | 18,547 | 17,399 | 8,254 | 7,582 | 9,264 | 8,209 |
| 9 Michigan State University | 17,760 | 17,516 | 16,799 | 14,133 | 12,493 | 11,840 | 11,794 | 9,203 |
| 10 SUNY at Stony Brook | 15,038 | 12,681 | 12,571 | 8,602 | 10,690 | 8,602 | 8,681 | 6,733 |
| Total, 1st 10 insts. | 321,756 | 299,095 | 297,096 | 271,167 | 261,098 | 241,564 | 247,750 | 226,234 |
| 11 Indiana University | 14,759 | 13,580 | 12,985 | 12,078 | 12,322 | 11,678 | 11,514 | 10,063 |
| 12 University of Chicago | 13,189 | 11,868 | 8,079 | 7,525 | 12,577 | 11,302 | 7,886 | 7,222 |
| 13 Univ of Ill Urbana | 12,685 | 12,655 | 11,983 | 11,930 | 10,706 | 10,733 | 10,022 | 9,930 |
| 14 Univ of Wis-Madison | 11,963 | 11,459 | 11,408 | 11,141 | 10,397 | 9,934 | 9,777 | 9,414 |
| 15 University of Iowa | 11,476 | 8,851 | 8,054 | 6,801 | 9,945 | 7,802 | 6,606 | 6,024 |
| 16 U of Houston | 11,149 | 10,973 | 6,064 | 6,097 | 7,758 | 5,810 | 3,494 | 4,017 |
| 17 Princeton University | 10,676 | 9,080 | 8,733 | 9,022 | 8,357 | 7,391 | 7,104 | 7,753 |
| 18 Univ of Cal Los Angeles | 10,782 | 10,826 | 10,164 | 9,719 | 10,192 | 9,570 | 8,162 | 8,888 |
| 19 Harvard University | 10,363 | 9,169 | 7,356 | 7,316 | 8,236 | 7,664 | 7,107 | 7,089 |
| 20 University of Michigan | 9,818 | 9,928 | 9,846 | 9,088 | 7,401 | 7,597 | 8,218 | 8,002 |
| Total, 1st 20 insts. | 438,916 | 407,484 | 391,768 | 359,884 | 358,989 | 331,245 | 327,640 | 302,636 |
| 21 Georgia Institute of Tech | 9,783 | 13,781 | 7,676 | 3,066 | 5,516 | 7,736 | 3,508 | 1,608 |
| 22 Rutgers the St Univ of NJ | 9,461 | 8,575 | 6,593 | 6,114 | 3,749 | 3,592 | 2,715 | 2,948 |
| 23 Univ of Cal San Diego | 9,377 | 7,904 | 6,630 | 6,276 | 8,531 | 7,135 | 5,982 | 5,825 |
| 24 Univ of Cal Santa Barbara | 8,529 | 8,779 | 7,548 | 6,970 | 7,496 | 7,797 | 6,575 | 6,045 |
| 25 Florida State University | 8,494 | 7,707 | 5,016 | 5,300 | 5,479 | 3,322 | 2,616 | 2,806 |
| 26 Yale University | 8,264 | 8,238 | 8,079 | 6,987 | 7,756 | 7,510 | 7,521 | 6,456 |
| 27 University of Minnesota | 8,225 | 7,036 | 5,897 | 6,354 | 5,475 | 5,009 | 4,222 | 4,982 |
| 28 University of Washington | 7,785 | 6,971 | 6,427 | 7,055 | 7,545 | 6,605 | 6,312 | 6,771 |
| 29 Univ of Pennsylvania | 7,320 | 7,149 | 7,081 | 7,923 | 7,084 | 6,553 | 6,643 | 6,971 |
| 30 Univ of Cal Irvine | 7,317 | 7,379 | 6,228 | 6,552 | 6,642 | 6,912 | 6,090 | 6,450 |
| Total, 1st 30 insts. | 523,471 | 491,003 | 458,943 | 422,481 | 424,262 | 393,416 | 379,824 | 353,498 |
| 31 Texas A & M University | 7,209 | 7,098 | 5,208 | 7,268 | 4,106 | 3,947 | 3,344 | 2,921 |
| 32 Univ. of Colorado | 7,151 | 6,970 | 6,082 | 5,657 | 6,148 | 5,969 | 5,244 | 4,723 |
| 33 Univ Alabama Huntsville | 6,527 | 6,218 | 6,231 | 2,781 | 5,294 | 4,868 | 3,770 | 2,117 |
| 34 Stanford University | 6,492 | 6,135 | 7,221 | 5,537 | 6,141 | 5,829 | 6,802 | 5,244 |
| 35 Ohio State University | 6,268 | 5,225 | 4,874 | 4,239 | 3,750 | 3,633 | 3,385 | 3,161 |
| 36 University of Rochester | 6,205 | 5,131 | 5,997 | 6,968 | 5,955 | 5,845 | 5,562 | 6,734 |
| 37 Duke University | 6,111 | 5,406 | 3,311 | 3,149 | 3,667 | 4,982 | 2,961 | 2,769 |
| 38 Univ of Alaska Fairbanks | 5,967 | 6,258 | 5,502E | 3,102 | 3,593 | 3,781 | 3,325E | 1,855 |
| 39 Purdue University | 5,795 | 4,896 | 5,080 | 4,790 | 4,004 | 3,434 | 3,656 | 3,632 |
| 40 Univ. Of Tennessee System | 5,616 | 5,741 | 4,889 | 3,777 | 3,967 | 3,305 | 2,845 | 2,197 |
| Total, 1st 40 insts. | 586,812 | 551,081 | 513,338 | 469,749 | 472,887 | 439,009 | 420,718 | 388,851 |
| 41 Boston University | 5,531 | 3,573 | 2,822 | 2,114 | 5,193 | 3,475 | 2,675 | 2,030 |
| 42 University of Oregon | 5,354 | 4,088 | 3,924 | 4,006 | 3,713 | 2,809 | 2,925 | 2,946 |
| 43 University of Virginia | 5,280 | 4,908 | 4,518 | 4,019 | 3,555 | 3,146 | 3,115 | 2,699 |
| 44 Vanderbilt University | 5,219 | 5,837 | 4,395 | 4,055 | 4,930 | 5,102 | 3,283 | 3,030 |
| 45 University of Florida | 5,157 | 4,720 | 4,121 | 3,123 | 3,208 | 3,236 | 2,572 | 1,753 |
| 46 University of Pittsburgh | 5,139 | 3,891 | 3,506 | 3,312 | 3,802 | 2,955 | 3,133 | 3,074 |
| 47 Northwestern University | 4,541 | 4,208 | 3,522 | 2,992 | 3,892 | 3,452 | 2,947 | 2,632 |
| 48 Louisiana State Univ | 4,454 | 3,769 | 3,488 | 3,403 | 3,906 | 2,477 | 2,527 | 2,482 |
| 49 Univ of Texas at Dallas | 4,408 | 4,616 | 4,585 | 3,098 | 2,916 | 3,784 | 2,980 | 3,805 |
| 50 University of Notre Dame | 4,387 | 4,381 | 4,414 | 2,968 | 3,237 | 3,393 | 3,784 | 2,439 |
| Total, 1st 50 insts. | 636,282 | 595,072 | 552,633 | 505,839 | 510,239 | 472,838 | 450,659 | 415,741 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-53. Total and federally financed R&D expenditures in physics
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|---------------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Univ of Cal Davis | 4,269 | 3,653 | 4,191 | 3,358 | 3,913 | 3,217 | 3,267 | 2,783 |
| 52 UT MD Anderson Cancer Ctr | 4,106 | 3,606 | 3,347 | 3,375 | 1,860 | 2,103 | 2,137 | 1,561 |
| 53 N C State Univ at Raleigh | 3,989 | 3,748 | 3,198 | 2,638 | 2,900 | 1,996 | 1,850 | 2,105 |
| 54 Univ of Ill Chicago | 3,710 | 3,284 | 4,527 | 4,122 | 2,677 | 2,268 | 3,229 | 3,118 |
| 55 Univ of Massachusetts | 3,673 | 3,734 | 3,779 | 3,300 | 2,938 | 2,658 | 2,972 | 2,458 |
| 56 Catholic Univ of America | 3,638 | 3,231 | 3,263 | 3,025 | 3,281 | 2,908 | 3,055 | 2,986 |
| 57 Brown University | 3,526 | 2,894 | 3,483 | 3,258 | 3,101 | 2,589 | 3,163 | 2,893 |
| 58 University of Mississippi | 3,495 | 506 | 490 | 517 | 3,082 | 405 | 469 | 447 |
| 59 Univ of Cal Santa Cruz | 3,482 | 3,447 | 3,001 | 2,924 | 3,042 | 3,056 | 2,661 | 2,659 |
| 60 Pennsylvania State Univ | 3,365 | 2,679 | 1,878 | 1,959 | 2,128 | 1,830 | 1,517 | 1,701 |
| Total, 1st 60 insts. | 673,535 | 625,854 | 583,790 | 533,315 | 539,161 | 495,868 | 474,979 | 438,452 |
| 61 Carnegie-Mellon Univ | 3,338 | 3,201 | 3,058 | 2,759 | 3,079 | 3,033 | 2,976 | 2,684 |
| 62 Utah State University | 3,209 | 3,283 | 4,124 | 1,751 | 2,671 | 2,814 | 3,697 | 1,476 |
| 63 CUNY City College | 3,155 | 3,504 | 3,128 | 3,856 | 2,707 | 3,042 | 2,636 | 3,637 |
| 64 Washington University | 3,118 | 2,734 | 2,365 | 2,284 | 2,472 | 2,537 | 1,938 | 1,987 |
| 65 Alabama A & M University | 3,094 | 2,390 | 939 | 1,991 | 2,592 | 1,939 | 815 | 1,991 |
| 66 Arizona State University | 3,043 | 2,995 | 2,848 | 1,906 | 2,196 | 2,289 | 1,718 | 841 |
| 67 University of Utah | 3,026 | 2,980 | 3,279 | 2,666 | 2,353 | 2,252 | 2,566 | 2,150 |
| 68 Syracuse University | 2,986 | 2,599 | 2,491 | 2,075 | 2,141 | 1,591 | 1,452 | 1,294 |
| 69 VA Polytech Inst & St U | 2,890 | 2,586 | 2,181 | 2,555 | 1,872 | 1,674 | 1,545 | 1,933 |
| 70 Rice University | 2,682 | 1,953 | 2,013 | 1,901 | 2,159 | 1,583 | 1,689 | 1,692 |
| Total, 1st 70 insts. | 704,076 | 654,079 | 610,216 | 557,059 | 563,403 | 518,622 | 496,011 | 458,137 |
| 71 Oklahoma State University | 2,634 | 1,875 | 2,623 | 2,226 | 1,082 | 1,183 | 1,012 | 1,095 |
| 72 US Naval Postgrad School | 2,477 | 2,261 | 2,168 | 1,266 | 2,443 | 2,204 | 2,168 | 1,266 |
| 73 Wayne State University | 2,445 | 1,673 | 1,246 | 1,307 | 506 | 594 | 529 | 367 |
| 74 College of William & Mary | 2,442 | 1,642 | 1,696 | 1,542 | 1,805 | 1,500 | 1,553 | 1,416 |
| 75 Rockefeller University | 2,413 | 2,047 | 2,458 | 2,190 | 1,034 | 764 | 758 | 776 |
| 76 University of Georgia | 2,253 | 2,148 | 2,093 | 1,980 | 841 | 788 | 837 | 564 |
| 77 Temple University | 2,133 | 2,050 | 1,802 | 1,183 | 1,021 | 733 | 523 | 949 |
| 78 Kans St U - Ag & App Sci | 2,096 | 2,485 | 2,647 | 1,750 | 1,920 | 2,271 | 2,147 | 1,428 |
| 79 Florida A & M University | 2,080 | 251 | 200 | 225 | 1,929 | 251 | 200 | 225 |
| 80 Northeastern University | 2,080 | 2,250 | 1,965 | 1,876 | 1,726 | 1,962 | 1,748 | 1,735 |
| Total, 1st 80 insts. | 727,129 | 672,761 | 629,114 | 572,604 | 577,710 | 530,872 | 507,486 | 468,158 |
| 81 Montana State University | 2,030 | 2,129 | 1,786 | 1,616 | 1,085 | 1,280 | 625 | 737 |
| 82 Univ of Cal Riverside | 1,968 | 1,849 | 1,863 | 2,076 | 1,958 | 1,826 | 1,794 | 1,969 |
| 83 Univ of Nebraska-Lincoln | 1,961 | 1,901 | 1,545 | 1,545 | 1,065 | 1,068 | 1,232 | 1,128 |
| 84 University of Denver | 1,853 | 1,575 | 1,644 | 1,903 | 1,519 | 1,400 | 743 | 1,643 |
| 85 Case Western Reserve Univ | 1,770E | 1,706 | 1,557 | 1,340 | 1,561 | 1,546 | 1,421 | 1,182 |
| 86 University of Oklahoma | 1,743 | 1,308 | 1,850 | 1,686 | 515 | 443 | 574 | 445 |
| 87 University of New Mexico | 1,724 | 1,932 | 1,734 | 1,423 | 1,258 | 1,369 | 1,307 | 947 |
| 88 Clemson University | 1,710 | 1,385 | 1,464 | 1,289 | 586 | 363 | 316 | 181 |
| 89 Univ of Southern Cal | 1,694 | 1,612 | 1,646 | 1,393 | 1,616 | 1,510 | 1,597 | 1,350E |
| 90 Univ of Hawaii-Manoa | 1,660 | 1,673 | 1,498 | 1,322 | 1,563 | 1,535 | 1,465 | 1,272 |
| Total, 1st 90 insts. | 745,242 | 689,831 | 645,701 | 588,197 | 590,436 | 543,212 | 518,560 | 479,012 |
| 91 University of Lowell | 1,647 | 1,314 | 1,293 | 842 | 890 | 968 | 1,031 | 841 |
| 92 University of Connecticut | 1,642 | 1,770 | 4,080 | 3,238 | 457 | 528 | 898 | 713 |
| 93 Rensselaer Polytech Inst | 1,624 | 1,628 | 1,330 | 773 | 782 | 1,078 | 667 | 436 |
| 94 Columbia Univ Main Div | 1,618 | 1,684 | 1,310 | 2,395 | 1,618 | 1,571 | 1,167 | 2,244 |
| 95 SUNY at Buffalo | 1,564 | 1,159 | 1,243 | 947 | 776 | 600 | 803 | 720 |
| 96 Drexel University | 1,561 | 1,424 | 1,282 | 1,628 | 1,062 | 935 | 761 | 902 |
| 97 University of Wyoming | 1,531 | 1,249 | 1,400 | 1,282 | 1,383 | 1,133 | 1,197 | 1,149 |
| 98 Auburn University | 1,498 | 973 | 916 | 786 | 663 | 457 | 562 | 339 |
| 99 Oregon Grad Inst Sci/Tech | 1,484 | 1,240 | 2,161 | 1,899 | 807 | 710 | 1,746 | 1,228 |
| 100 Iowa St U of Sci & Tech | 1,476 | 1,301 | 1,057 | 893 | 826 | 742 | 626 | 445 |
| Total, 1st 100 insts. | 760,887 | 703,573 | 661,773 | 602,880 | 599,700 | 551,934 | 528,018 | 488,029 |
| Total, all other sampled insts. | 67,782 | 65,914 | 68,662 | 61,739 | 44,444 | 43,468 | 45,708 | 41,701 |
| Estimated total non-sampled insts. | 5,589 | 4,186 | 0 | 0 | 3,322 | 2,663 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential

E = Estimated

I = Imputed

NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-54. R&D expenditures in the environmental sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Environmental sciences total | | | | 1990 subfields | | | |
|---------------------------------|------------------------------|---------|---------|---------|------------------|-------------------|-------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Atmos- pheric | Earth sciences | Ocean- ography | Other |
| Total, all institutions | 1,047,299 | 989,007 | 885,093 | 831,303 | 167,313 | 354,599 | 375,417 | 149,970 |
| 1 Univ of Cal San Diego | 73,805 | 75,600 | 70,164 | 64,768 | 0 | 15,773 | 58,032 | 0 |
| 2 Texas A & M University | 64,027 | 52,220 | 56,249 | 50,005 | 659 | 5,989 | 5,139 | 2,240 |
| 3 Woods Hole Oceanographic Inst | 60,404 | 65,436 | 47,100 | 38,345 | 4,332 | 20,182 | 15,655 | 20,235 |
| 4 Johns Hopkins Univ | 41,412 | 43,970 | 32,973 | 27,963 | 10,218 | 2,410 | 17,760 | 11,024 |
| 5 Univ of Texas at Austin | 25,285 | 20,919 | 23,440 | 21,893 | 0 | 16,476 | 8,809 | 0 |
| 6 Univ of Alaska Fairbanks | 24,879 | 21,766 | 19,138 | 21,666 | 524 | 6,057 | 18,298 | 0 |
| 7 Columbia Univ Main Div | 24,529 | 29,982 | 29,662 | 27,359 | 0 | 0 | 24,529 | 0 |
| 8 Univ of Hawaii-Manoa | 24,188 | 23,005 | 19,907 | 15,734 | 178 | 21,113 | 1,482 | 1,415 |
| 9 Univ. of Colorado | 23,643 | 22,512 | 22,730 | 20,467 | 12,215 | 8,561 | 1,000 | 1,867 |
| 10 University of Arizona | 22,397 | 22,612 | 17,572 | 17,220 | 1,477 | 5,182 | 0 | 15,738 |
| Total, 1st 10 insts. | 384,569 | 378,022 | 338,935 | 305,420 | 29,603 | 101,743 | 200,704 | 52,519 |
| 11 Univ of Wis-Madison | 22,033 | 20,869 | 20,640 | 19,637 | 14,297 | 1,915 | 2,460 | 3,361 |
| 12 University of Washington | 21,389 | 19,198 | 20,316 | 18,717 | 5,868 | 4,338 | 11,027 | 156 |
| 13 Univ of Ill Urbana | 20,749 | 20,702 | 18,205 | 21,340 | 1,049 | 17,606 | 0 | 2,094 |
| 14 Univ of Rhode Island | 18,944 | 14,917 | 15,048 | 15,441 | 0 | 141 | 18,803 | 0 |
| 15 University of Miami | 18,626 | 16,132 | 14,065 | 12,983 | 8,563 | 66 | 6,261 | 3,736 |
| 16 Oregon State University | 18,623 | 20,097 | 19,629 | 18,816 | 964 | 1,270 | 16,389 | 0 |
| 17 University of Michigan | 17,154 | 16,142 | 14,600 | 14,023 | 8,742 | 2,901 | 2,394 | 3,117 |
| 18 California Inst of Tech | 15,957 | 14,391 | 12,482 | 12,661 | 0 | 15,285 | 0 | 672 |
| 19 U of MD Center For EES | 15,652 | 13,741 | 12,682 | 12,029 | 0 | 0 | 13,988 | 1,664 |
| 20 Louisiana State Univ | 14,845 | 14,329 | 14,340 | 13,091 | 0 | 4,621 | 7,515 | 2,709 |
| Total, 1st 20 insts. | 568,541 | 548,540 | 500,942 | 464,158 | 69,086 | 149,886 | 279,541 | 70,028 |
| 21 Desert Research Institute | 14,118 | 13,671 | 13,023 | 11,626 | 3,506 | 4,903 | 0 | 5,709 |
| 22 Pennsylvania State Univ | 14,095 | 12,537 | 10,544 | 10,979 | 5,131 | 6,719 | 0 | 2,245 |
| 23 Mass Inst of Technology | 12,247 | 11,614 | 11,716 | 10,582 | 245 | 10,165 | 1,837 | 0 |
| 24 Univ of Cal Los Angeles | 12,215 | 11,272 | 11,278 | 11,626 | 2,241 | 9,974 | 0 | 0 |
| 25 Utah State University | 10,843 | 11,246 | 8,650 | 13,406 | 6,084 | 4,759 | 0 | 0 |
| 26 Georgia Institute of Tech | 10,257 | 9,918 | 7,405 | 8,595 | 7,675 | 2,582 | 0 | 0 |
| 27 SUNY at Stony Brook | 9,874 | 10,021 | 9,018 | 5,997 | 285 | 1,982 | 7,368 | 239 |
| 28 Univ of South Carolina | 9,617 | 7,972 | 6,307 | 5,961 | 0 | 5,865 | 3,752 | 0 |
| 29 Univ of Cal Santa Barbara | 9,611 | 9,305 | 8,667 | 6,899 | 0 | 590 | 7,074 | 1,947 |
| 30 Univ of New Hampshire | 9,309 | 7,391 | 6,847 | 6,089 | 0 | 1,476 | 1,418 | 6,415 |
| Total, 1st 30 insts. | 680,727 | 653,487 | 594,397 | 555,918 | 94,253 | 198,901 | 300,990 | 86,583 |
| 31 University of Oklahoma | 9,056 | 8,632 | 8,581 | 9,305 | 4,207 | 4,849 | 0 | 0 |
| 32 SUNY at Albany | 8,881 | 11,089 | 8,008 | 7,671 | 8,417 | 464 | 0 | 0 |
| 33 University of Minnesota | 8,802 | 7,198 | 5,803 | 5,750 | 1,134 | 7,668 | 0 | 0 |
| 34 Colorado State University | 8,207 | 7,813 | 7,223 | 6,339 | 8,092 | 115 | 0 | 0 |
| 35 Florida State University | 7,996 | 6,912 | 6,844 | 6,267 | 3,569 | 917 | 2,664 | 846 |
| 36 Arizona State University | 7,529 | 4,399 | 4,477 | 3,265 | 0 | 7,297 | 0 | 232 |
| 37 Univ of Southern Cal | 7,207 | 7,305 | 6,462 | 7,618 | 0 | 3,809 | 1,788 | 1,610 |
| 38 Univ of Central Florida | 7,084 | 8,739 | 2,204 | 839 | 6,869 | 215 | 0 | 0 |
| 39 Southern Methodist Univ | 7,011 | 4,051 | 2,018 | 837 | 0 | 7,011 | 0 | 0 |
| 40 University of Connecticut | 6,796 | 6,569 | 4,574 | 4,379 | 0 | 607 | 6,189 | 0 |
| Total, 1st 40 insts. | 759,296 | 726,194 | 650,591 | 608,188 | 126,541 | 231,853 | 311,631 | 89,271 |
| 41 University of Georgia | 6,737 | 6,111 | 5,417 | 6,118 | 0 | 3,466 | 3,271 | 0 |
| 42 University of Delaware | 6,721 | 6,641 | 7,027 | 5,948 | 0 | 499 | 6,222 | 0 |
| 43 Univ of MD College Park | 6,437 | 6,557 | 5,862 | 5,376 | 4,490 | 1,135 | 812 | 0 |
| 44 West Virginia University | 6,314 | 1,378 | 940 | 952 | 0 | 501 | 0 | 5,813 |
| 45 Harvard University | 6,303 | 6,692 | 6,073 | 6,224 | 0 | 6,303 | 0 | 0 |
| 46 Princeton University | 6,270 | 6,388 | 6,210 | 6,223 | 2,758 | 3,512 | 0 | 0 |
| 47 Cornell University | 6,215 | 5,504 | 6,964 | 6,123 | 0 | 3,190 | 0 | 3,025 |
| 48 University of Kansas | 6,196 | 7,324 | 6,954 | 6,660 | 0 | 6,015 | 0 | 181 |
| 49 Univ of Massachusetts | 5,979 | 6,062 | 5,715 | 4,499 | 0 | 3,218 | 23 | 2,738 |
| 50 Rutgers the St Univ of NJ | 5,949 | 5,439 | 5,637 | 5,619 | 286 | 308 | 57 | 5,298 |
| Total, 1st 50 insts. | 822,417 | 784,290 | 707,390 | 661,930 | 134,075 | 260,000 | 322,016 | 106,326 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-54. R&D expenditures in the environmental sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Environmental sciences total | | | | 1990 subfields | | | |
|---------------------------------------|------------------------------|---------|---------|---------|------------------|-------------------|-------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Atmos- pheric | Earth sciences | Ocean- ography | Other |
| 51 Stanford University | 5,645 | 5,186 | 4,464 | 4,308 | 01 | 4,486 | 1,159 | 01 |
| 52 Univ of Cal Berkeley | 5,389 | 3,024 | 2,374 | 2,377 | 0 | 5,389 | 0 | 0 |
| 53 University of Virginia | 5,322 | 4,588 | 4,175 | 3,437 | 3,743 | 0 | 1,572 | 7 |
| 54 N C State Univ at Raleigh | 5,301 | 5,473 | 4,740 | 4,495 | 0 | 0 | 2,559 | 2,742 |
| 55 Univ of NC at Chapel Hill | 5,192 | 4,700 | 4,343 | 4,947 | 0 | 2,938 | 2,254 | 0 |
| 56 Univ of South Florida | 5,063 | 3,955 | 2,755 | 3,326 | 23 | 490 | 4,509 | 41 |
| 57 N J Inst of Technology | 4,922 | 2,516 | 0 | 0 | 0 | 0 | 0 | 4,922 |
| 58 Univ of Cal Santa Cruz | 4,694 | 3,796 | 4,685 | 4,024 | 0 | 2,008 | 2,217 | 469 |
| 59 Brown University | 4,669 | 4,138 | 4,118 | 3,861 | 0 | 4,553 | 0 | 116 |
| 60 N Mex Inst Mining & Tech | 4,576 | 4,114 | 3,206 | 2,926 | 2,130 | 2,446 | 0 | 0 |
| Total, 1st 60 insts. | 873,190 | 825,780 | 742,250 | 694,731 | 139,971 | 282,310 | 336,286 | 114,623 |
| 61 College of William & Mary | 4,574 | 4,145 | 4,770 | 4,174 | 0 | 0 | 4,574 | 0 |
| 62 University of Florida | 4,526 | 3,944 | 3,582 | 3,578 | 30 | 1,430 | 2,824 | 262 |
| 63 Univ of Nevada - Reno | 4,424 | 3,738 | 4,170 | 2,585 | 123 | 2,354 | 0 | 1,947 |
| 64 Univ of Maine Orono | 4,350 | 3,330 | 1,630 | 3,015 | 0 | 2,882 | 1,098 | 370 |
| 65 Tufts University | 4,148 | 3,922 | 2,941 | 2,464 | 0 | 43 | 0 | 4,105 |
| 66 University of Chicago | 4,089 | 3,994 | 3,057 | 3,314 | 0 | 4,089 | 0 | 0 |
| 67 San Jose State University | 3,805 | 3,698 | 2,247 | 2,988 | 729 | 147 | 2,929 | 0 |
| 68 Ohio State University | 3,685 | 4,491 | 4,099 | 3,719 | 0 | 1,147 | 0 | 2,538 |
| 69 US Naval Postgrad School | 3,558 | 3,029 | 3,865 | 2,931 | 1,746 | 0 | 1,812 | 0 |
| 70 University of Utah | 3,521 | 3,477 | 3,290 | 2,675 | 1,149 | 2,372 | 0 | 0 |
| Total, 1st 70 insts. | 913,870 | 863,548 | 775,901 | 726,174 | 143,748 | 296,774 | 349,523 | 123,825 |
| 71 VA Polytech Inst & St U | 3,434 | 3,497 | 2,488 | 3,111 | 0 | 3,434 | 0 | 0 |
| 72 University of Wyoming | 3,046 | 2,704 | 2,842 | 2,515 | 1,330 | 1,116 | 0 | 600 |
| 73 Univ of Nebraska-Lincoln | 2,996 | 2,314 | 4,170 | 3,762 | 1,126 | 1,870 | 0 | 0 |
| 74 Memphis State University | 2,946 | 2,679 | 2,313 | 2,281 | 0 | 2,946 | 0 | 0 |
| 75 University of N Dakota | 2,882 | 2,923 | 2,679 | 3,396 | 2,817 | 2 | 0 | 63 |
| 76 Rice University | 2,849 | 2,175 | 2,257 | 1,746 | 0 | 1,219 | 0 | 1,630 |
| 77 Univ of Wis-Milwaukee | 2,740 | 2,457 | 2,266 | 2,456 | 0 | 218 | 2,478 | 44 |
| 78 University of Oregon | 2,655 | 2,510 | 950 | 752 | 0 | 703 | 1,947 | 5 |
| 79 Duke University | 2,520 | 3,316 | 3,732 | 3,563 | 0 | 360 | 2,160 | 0 |
| 80 Yale University | 2,329 | 2,153 | 2,241 | 1,892 | 798 | 882 | 518 | 131 |
| Total, 1st 80 insts. | 942,267 | 890,276 | 801,839 | 751,648 | 149,819 | 309,524 | 356,626 | 126,298 |
| 81 Fairleigh Dickinson Univ | 2,297 | 2,274 | 3,140 | 2,308 | 0 | 0 | 2,297 | 0 |
| 82 The University of Alabama | 2,244 | 2,291 | 940 | 1,397 | 2 | 740 | 54 | 1,448 |
| 83 SUNY Col of Env Sci & For | 2,177 | 2,234 | 1,103 | 683 | 271 | 118 | 459 | 1,329 |
| 84 Oregon Grad Inst Sci/Tech | 2,165 | 2,289 | 2,209 | 1,802 | 1,010 | 0 | 0 | 1,155 |
| 85 New Mexico State Univ | 2,108 | 1,788 | 1,939 | 929 | 1,682 | 342 | 0 | 84 |
| 86 University of Idaho | 2,006 | 1,436 | 1,230 | 887 | 0 | 1,564 | 0 | 442 |
| 87 Washington University | 1,999 | 1,966 | 1,783 | 1,540 | 0 | 1,999 | 0 | 0 |
| 88 U of Houston | 1,934 | 1,275 | 1,699 | 1,478 | 0 | 1,378 | 0 | 556 |
| 89 Carnegie-Mellon Univ | 1,886 | 1,676 | 1,701 | 1,761 | 0 | 0 | 0 | 1,886 |
| 90 Purdue University | 1,882 | 2,020 | 1,804 | 1,651 | 387 | 755 | 536 | 204 |
| Total, 1st 90 insts. | 962,965 | 909,525 | 819,387 | 766,084 | 153,171 | 316,420 | 359,972 | 133,402 |
| 91 Michigan State University | 1,758 | 1,159 | 1,017 | 776 | 0 | 171 | 0 | 1,587 |
| 92 Univ of Wis-Superior | 1,692 | 1,745 | 1,552 | 1,654 | 0 | 0 | 0 | 1,692 |
| 93 University of New Mexico | 1,628 | 1,521 | 1,568 | 1,352 | 677 | 951 | 0 | 0 |
| 94 Univ. Of Tennessee System | 1,607 | 1,455 | 1,080 | 1,014 | 102 | 1,505 | 0 | 0 |
| 95 Florida Inst of Tech | 1,544 | 1,357 | 639 | 507 | 0 | 316 | 1,228 | 0 |
| 96 Old Dominion U Res Fdn | 1,536 | 1,229 | 1,088 | 948 | 0 | 203 | 1,333 | 0 |
| 97 Univ of Cal Riverside | 1,519 | 1,462 | 1,384 | 1,511 | 0 | 1,519 | 0 | 0 |
| 98 S Dak Sch Mines & Tech | 1,504 | 1,573 | 1,286 | 1,188 | 1,504 | 0 | 0 | 0 |
| 99 Oklahoma State University | 1,469 | 1,003 | 427 | 308 | 0 | 767 | 0 | 702 |
| 100 Univ of Texas at Dallas | 1,467 | 577 | 546 | 723 | 0 | 1,467 | 0 | 0 |
| Total, 1st 100 insts. | 978,689 | 922,606 | 829,974 | 776,065 | 155,454 | 323,319 | 362,533 | 137,383 |
| Total, all other sampled insts. | 48,183 | 47,947 | 55,119 | 55,238 | 5,675 | 26,203 | 4,298 | 12,007 |
| Estimated total non-sampled insts. | 20,427 | 18,454 | 0 | 0 | 6,184 | 5,077 | 8,586 | 580 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

BEST COPY AVAILABLE

Table B-55. Federally financed R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Environmental sciences total | | | | 1990 subfields | | | |
|-------------------------------|------------------------------|---------|---------|---------|------------------|-------------------|-------------------|--------|
| | 1990 | 1989 | 1988 | 1987 | Atmos- pheric | Earth sciences | Ocean- ography | Other |
| Total, all institutions | 674,129 | 647,844 | 583,152 | 541,062 | 127,487 | 204,909 | 267,720 | 74,013 |
| 1 Univ of Cal San Diego | 53,102 | 57,182 | 53,001 | 47,102 | 0 | 9,448 | 43,654 | 0 |
| 2 Woods Hole Ocnographic Inst | 52,642 | 57,043 | 40,800 | 33,976 | 3,583 | 18,434 | 13,373 | 17,252 |
| 3 Texas A & M University | 45,980 | 42,308 | 41,651 | 40,290 | 466 | 1,555 | 42,383 | 1,476 |
| 4 Johns Hopkins Univ | 37,661 | 40,712 | 29,278 | 25,726 | 10,124 | 1,951 | 17,119 | 8,467 |
| 5 Columbia Univ Main Div | 23,965 | 28,204 | 27,073 | 26,358 | 0 | 0 | 23,965 | 0 |
| 6 University of Washington | 20,274 | 17,954 | 19,195 | 16,593 | 5,621 | 4,132 | 10,447 | 74 |
| 7 Univ. of Colorado | 20,252 | 18,997 | 19,362 | 17,545 | 10,615 | 7,066 | 911 | 1,660 |
| 8 Oregon State University | 16,568 | 16,577 | 15,640 | 14,620 | 897 | 1,015 | 14,656 | 0 |
| 9 Univ of Wis-Madison | 15,865 | 14,461 | 14,852 | 14,143 | 12,838 | 812 | 630 | 1,585 |
| 10 Univ of Hawaii-Manoa | 15,393 | 14,673 | 13,657 | 10,732 | 178 | 13,800 | 1,024 | 391 |
| Total, 1st 10 insts. | 301,702 | 308,111 | 274,509 | 247,085 | 44,322 | 58,313 | 168,162 | 30,905 |
| 11 California Inst of Tech | 15,155 | 13,628 | 11,459 | 11,136 | 0 | 15,083 | 0 | 72 |
| 12 University of Miami | 14,981 | 13,691 | 11,194 | 9,469 | 7,265 | 56 | 4,844 | 2,816 |
| 13 Univ of Rhode Island | 14,239 | 10,829 | 11,334 | 11,724 | 0 | 17 | 14,222 | 0 |
| 14 Univ of Alaska Fairbanks | 14,079 | 11,390 | 10,015 | 11,243 | 516 | 2,762 | 10,801 | 0 |
| 15 University of Michigan | 13,150 | 11,965 | 11,870 | 11,124 | 8,196 | 1,590 | 1,727 | 1,637 |
| 16 Mass Inst of Technology | 9,776 | 9,032 | 9,583 | 8,400 | 196 | 8,114 | 1,466 | 0 |
| 17 Univ of Cal Los Angeles | 8,654 | 7,753 | 7,779 | 7,465 | 2,107 | 6,547 | 0 | 0 |
| 18 Colorado State University | 7,414 | 7,134 | 6,589 | 5,942 | 7,307 | 107 | 0 | 0 |
| 19 Arizona State University | 7,073 | 4,017 | 3,399 | 1,083 | 0 | 7,073 | 0 | 0 |
| 20 Univ of Cal Santa Barbara | 7,029 | 6,604 | 5,621 | 4,515 | 0 | 468 | 5,138 | 1,423 |
| Total, 1st 20 insts. | 413,252 | 404,154 | 363,352 | 329,186 | 69,909 | 100,130 | 206,360 | 36,853 |
| 21 Desert Research Institute | 6,983 | 7,380 | 6,931 | 5,792 | 2,313 | 3,728 | 0 | 882 |
| 22 Southern Methodist Univ | 6,896 | 3,913 | 1,935 | 810 | 0 | 6,896 | 0 | 0 |
| 23 Univ of Texas at Austin | 6,644 | 5,137 | 8,284 | 7,206 | 0 | 4,514 | 2,130 | 0 |
| 24 University of Arizona | 6,644 | 6,665 | 4,693 | 4,914 | 379 | 2,812 | 0 | 3,453 |
| 25 Pennsylvania State Univ | 6,313 | 5,857 | 5,062 | 5,263 | 3,952 | 1,902 | 0 | 459 |
| 26 SUNY at Stony Brook | 6,018 | 5,081 | 6,172 | 3,121 | 82 | 1,467 | 4,469 | 0 |
| 27 Louisiana State Univ | 5,975 | 4,822 | 4,919 | 4,343 | 0 | 1,877 | 3,221 | 877 |
| 28 Univ of Ill Urbana | 5,876 | 6,030 | 5,941 | 5,768 | 852 | 4,535 | 0 | 489 |
| 29 Harvard University | 5,815 | 6,202 | 6,019 | 6,161 | 0 | 5,815 | 0 | 0 |
| 30 Georgia Institute of Tech | 5,784 | 5,568 | 4,188 | 4,509 | 4,328 | 1,456 | 0 | 0 |
| Total, 1st 30 insts. | 476,200 | 460,809 | 417,496 | 377,073 | 81,815 | 135,192 | 216,180 | 43,013 |
| 31 Univ of New Hampshire | 5,224 | 4,231 | 4,315 | 4,318 | 0 | 1,024 | 686 | 3,514 |
| 32 Univ of Southern Cal | 5,196 | 5,326 | 4,747 | 5,955 | 0 | 2,937 | 1,288 | 971 |
| 33 West Virginia University | 5,106 | 554 | 366 | 279 | 0 | 305 | 0 | 4,801 |
| 34 Utah State University | 4,998 | 5,811 | 4,867 | 10,010 | 3,998 | 1,000 | 0 | 0 |
| 35 SUNY at Albany | 4,953 | 5,282 | 5,145 | 5,209 | 4,614 | 339 | 0 | 0 |
| 36 University of Virginia | 4,670 | 3,940 | 3,526 | 2,894 | 3,132 | 0 | 1,538 | 0 |
| 37 Univ of MD College Park | 4,593 | 5,061 | 4,503 | 4,058 | 3,589 | 192 | 812 | 0 |
| 38 University of Connecticut | 4,341 | 4,366 | 2,604 | 2,490 | 0 | 427 | 3,914 | 0 |
| 39 Florida State University | 4,183 | 3,877 | 3,960 | 3,667 | 2,451 | 350 | 994 | 388 |
| 40 Brown University | 3,961 | 3,499 | 3,858 | 3,651 | 0 | 3,961 | 0 | 0 |
| Total, 1st 40 insts. | 523,425 | 502,756 | 455,387 | 419,604 | 99,599 | 145,727 | 225,412 | 52,687 |
| 41 Univ of Cal Berkeley | 3,954 | 2,011 | 1,432 | 1,489 | 0 | 3,954 | 0 | 0 |
| 42 Princeton University | 3,930 | 3,454 | 3,289 | 3,503 | 2,018 | 1,912 | 0 | 0 |
| 43 University of Delaware | 3,786 | 3,666 | 3,505 | 2,857 | 0 | 259 | 3,527 | 0 |
| 44 Tufts University | 3,737 | 2,937 | 2,049 | 2,062 | 0 | 38 | 0 | 3,699 |
| 45 University of Chicago | 3,728 | 3,765 | 2,817 | 3,104 | 0 | 3,728 | 0 | 0 |
| 46 US Naval Postgrad School | 3,543 | 2,981 | 3,862 | 2,906 | 1,746 | 0 | 1,797 | 0 |
| 47 Stanford University | 3,390 | 3,218 | 3,032 | 3,133 | 0 | 2,339 | 1,051 | 0 |
| 48 College of William & Mary | 3,346 | 2,601 | 2,472 | 2,145 | 0 | 0 | 3,346 | 0 |
| 49 Cornell University | 3,161 | 3,120 | 4,935 | 4,607 | 0 | 2,408 | 0 | 753 |
| 50 San Jose State University | 2,936 | 3,116 | 1,998 | 1,812 | 638 | 24 | 2,274 | 0 |
| Total, 1st 50 insts. | 558,936 | 533,625 | 484,778 | 447,222 | 104,001 | 160,389 | 237,407 | 57,139 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table 8-55. Federally financed R&D expenditures in the environmental sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Environmental sciences total | | | | 1990 subfields | | | |
|---------------------------------------|------------------------------|---------|---------|---------|------------------|-------------------|-------------------|--------|
| | 1990 | 1989 | 1988 | 1987 | Atmos- pheric | Earth sciences | Ocean- ography | Other |
| 51 Univ of South Carolina | 2,827 | 2,612 | 2,342 | 1,851 | 0 | 1,319 | 1,508 | 0 |
| 52 Univ of Maine Orono | 2,806 | 2,236 | 1,061 | 2,061 | 0 | 1,840 | 759 | 207 |
| 53 Univ of South Florida | 2,785 | 2,080 | 1,983 | 2,323 | 0 | 91 | 2,694 | 0 |
| 54 Univ of Cal Santa Cruz | 2,725 | 2,270 | 2,846 | 2,248 | 0 | 1,373 | 1,215 | 137 |
| 55 University of N Dakota | 2,704 | 2,874 | 2,257 | 2,532 | 2,682 | 1 | 0 | 21 |
| 56 N C State Univ at Raleigh | 2,625 | 2,257 | 2,426 | 3,119 | 0 | 0 | 951 | 1,674 |
| 57 Univ of NC at Chapel Hill | 2,614 | 2,666 | 2,412 | 2,256 | 0 | 1,591 | 1,023 | 0 |
| 58 Univ of Nevada - Reno | 2,467 | 1,800 | 2,500 | 1,240 | 123 | 1,764 | 0 | 580 |
| 59 University of Minnesota | 2,440 | 2,790 | 2,708 | 2,273 | 0 | 2,440 | 0 | 0 |
| 60 University of Oklahoma | 2,399 | 2,494 | 2,281 | 2,152 | 1,735 | 664 | 0 | 0 |
| Total, 1st 60 insts. | 585,328 | 558,704 | 507,594 | 469,277 | 108,541 | 171,472 | 245,557 | 59,758 |
| 61 U of MD Center For EES | 2,379 | 2,519 | 2,542 | 2,629 | 0 | 0 | 2,177 | 202 |
| 62 Fairleigh Dickinson Univ | 2,295 | 2,230 | 3,052 | 2,264 | 0 | 0 | 2,295 | 0 |
| 63 Rice University | 2,274 | 1,808 | 1,950 | 1,223 | 0 | 1,082 | 0 | 1,192 |
| 64 University of Oregon | 2,206 | 2,048 | 550 | 499 | 0 | 444 | 1,762 | 0 |
| 65 Ohio State University | 1,993 | 2,465 | 2,195 | 2,166 | 0 | 673 | 0 | 1,320 |
| 66 University of Utah | 1,978 | 2,238 | 2,166 | 1,506 | 851 | 1,127 | 0 | 0 |
| 67 N Mex Inst Mining & Tech | 1,940 | 1,897 | 1,788 | 1,155 | 1,298 | 642 | 0 | 0 |
| 68 University of Florida | 1,940 | 1,820 | 1,827 | 1,466 | 0 | 518 | 1,290 | 132 |
| 69 University of Georgia | 1,826 | 1,574 | 1,437 | 1,653 | 0 | 651 | 1,175 | 0 |
| 70 University of Wyoming | 1,825 | 2,055 | 2,025 | 1,733 | 900 | 705 | 0 | 220 |
| Total, 1st 70 insts. | 605,984 | 579,358 | 526,173 | 485,571 | 111,590 | 177,314 | 254,256 | 62,824 |
| 71 Duke University | 1,817 | 2,112 | 1,909 | 1,617 | 0 | 242 | 1,575 | 0 |
| 72 New Mexico State Univ | 1,797 | 1,501 | 1,500 | 549 | 1,604 | 193 | 0 | 0 |
| 73 Yale University | 1,754 | 1,482 | 1,643 | 1,525 | 667 | 737 | 263 | 87 |
| 74 VA Polytech Inst & St U | 1,580 | 1,694 | 816 | 1,405 | 0 | 1,580 | 0 | 0 |
| 75 Univ of Wis-Superior | 1,550 | 1,495 | 1,309 | 1,412 | 0 | 0 | 0 | 1,550 |
| 76 Wentworth Inst of Tech | 1,435 | 1,383 | 1,457 | 1,431 | 1,435 | 0 | 0 | 0 |
| 77 Washington University | 1,414 | 1,470 | 1,379 | 1,216 | 0 | 1,414 | 0 | 0 |
| 78 Oregon Grad Inst Sci/Tech | 1,406 | 1,595 | 1,740 | 1,651 | 789 | 0 | 0 | 617 |
| 79 Purdue University | 1,331 | 1,558 | 1,288 | 1,346 | 332 | 503 | 401 | 951 |
| 80 S Dak Sch Mines & Tech | 1,274 | 1,367 | 1,068 | 971 | 1,274 | 0 | 0 | 0 |
| Total, 1st 80 insts. | 621,342 | 595,015 | 540,282 | 498,694 | 117,691 | 181,983 | 256,495 | 65,173 |
| 81 Univ of P R-Mayaguez | 1,251 | 1,067 | 1,075 | 392 | 0 | 793 | 458 | 0 |
| 82 N J Inst of Technology | 1,241 | 0 | 0 | 0 | 0 | 0 | 0 | 1,241 |
| 83 Univ of Massachusetts | 1,200 | 1,396 | 1,199 | 1,139 | 0 | 969 | 10 | 221 |
| 84 Old Dominion U Res Fdn | 1,173 | 874 | 650 | 539 | 0 | 182 | 991 | 0 |
| 85 Univ of Wis-Milwaukee | 1,155 | 1,047 | 836 | 1,009 | 0 | 101 | 1,048 | 6 |
| 86 Noya University | 1,035 | 878 | 746 | 686 | 0 | 0 | 1,035 | 0 |
| 87 University of Lowell | 1,017 | 33 | 439 | 29 | 0 | 67 | 0 | 950 |
| 88 University of Idaho | 998 | 653 | 315 | 198 | 0 | 846 | 0 | 152 |
| 89 Univ of Cal Davis | 996 | 626 | 677 | 932 | 0 | 996 | 0 | 0 |
| 90 Univ Alabama Huntsville | 914 | 670 | 336 | 66 | 914 | 0 | 0 | 0 |
| Total, 1st 90 insts. | 632,322 | 602,259 | 546,555 | 503,684 | 118,605 | 185,937 | 260,037 | 67,743 |
| 91 Univ of Cal Riverside | 892 | 981 | 965 | 862 | 0 | 892 | 0 | 0 |
| 92 University of New Mexico | 802 | 788 | 871 | 584 | 284 | 518 | 0 | 0 |
| 93 Univ of Central Florida | 791 | 4,225 | 873 | 341 | 791 | 0 | 0 | 0 |
| 94 Northwestern University | 768 | 794 | 866 | 514 | 0 | 768 | 0 | 0 |
| 95 Univ. Of Tennessee System | 745 | 668 | 494 | 616 | 102 | 643 | 0 | 0 |
| 96 Michigan State University | 740 | 315 | 179 | 116 | 0 | 103 | 0 | 637 |
| 97 Rutgers the St Univ of NJ | 710 | 804 | 1,000 | 1,372 | 5 | 140 | 0 | 565 |
| 98 St Louis University | 704 | 578 | 442 | 695 | 0 | 704 | 0 | 0 |
| 99 Univ of Nebraska-Lincoln | 679 | 1,469 | 2,386 | 2,190 | 397 | 282 | 0 | 0 |
| 100 Memphis State University | 622 | 504 | 446 | 374 | 0 | 622 | 0 | 0 |
| Total, 1st 100 insts. | 639,775 | 613,385 | 555,077 | 511,348 | 120,184 | 190,609 | 260,037 | 68,945 |
| Total, all other sampled insts. | 19,754 | 20,023 | 28,075 | 29,714 | 1,436 | 12,115 | 1,248 | 4,955 |
| Estimated total non-sampled insts. | 14,600 | 14,436 | 0 | 0 | 5,867 | 2,185 | 6,435 | 113 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-56. Total and federally financed R&D expenditures in the mathematical sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 221,297 | 214,631 | 199,104 | 176,872 | 158,688 | 155,989 | 149,259 | 131,378 |
| 1 Johns Hopkins Univ | 33,545 | 35,960 | 35,951 | 29,214 | 33,475 | 35,870 | 35,841 | 29,118 |
| 2 Univ of MD College Park | 8,936 | 7,956 | 7,253 | 6,875 | 1,716 | 1,562 | 1,263 | 1,170 |
| 3 Rutgers the St Univ of NJ | 8,479 | 6,114 | 6,012 | 4,164 | 4,658 | 2,345 | 2,926 | 2,126 |
| 4 University of Washington | 6,247 | 5,436 | 4,122 | 4,071 | 5,772 | 4,902 | 3,750 | 3,452 |
| 5 Cornell University | 5,819 | 5,194 | 5,436 | 4,254 | 4,557 | 3,930 | 4,312 | 3,320 |
| 6 George Washington Univ | 5,552 | 5,260 | 4,109 | 3,607 | 5,161 | 5,064 | 3,985E | 3,470 |
| 7 University of Minnesota | 4,719 | 4,704 | 4,329 | 3,746 | 3,969 | 4,013 | 3,768 | 3,194 |
| 8 Brown University | 4,260 | 5,455 | 5,441 | 3,838 | 3,823 | 4,720 | 3,041 | 3,705 |
| 9 Iowa St U of Sci & Tech | 4,082 | 4,184 | 3,671 | 3,479 | 1,465 | 1,631 | 1,374 | 1,339 |
| 10 New York University | 4,065 | 4,824 | 6,701 | 6,077 | 3,655 | 4,422 | 6,219 | 5,533 |
| Total, 1st 10 insts. | 85,704 | 85,087 | 83,025 | 69,325 | 68,251 | 68,459 | 68,479 | 56,427 |
| 11 Univ of Cal Berkeley | 3,983 | 3,911 | 3,643 | 3,377 | 3,612 | 3,337 | 3,169 | 3,091 |
| 12 Univ of Wis-Madison | 3,905 | 3,619 | 4,188 | 3,998 | 2,668 | 2,390 | 2,777 | 2,843 |
| 13 Boston College | 3,649 | 2,500 | 2,062 | 1,599 | 3,065 | 2,372 | 2,056 | 1,528 |
| 14 Univ of Cal Los Angeles | 3,456 | 3,009 | 2,655 | 2,143 | 3,323 | 2,899 | 2,504 | 2,091 |
| 15 N C State Univ at Raleigh | 3,203 | 3,091 | 2,608 | 2,512 | 1,258 | 1,208 | 1,022 | 961 |
| 16 Stanford University | 3,082 | 2,900 | 2,855 | 2,711 | 2,711 | 2,602 | 2,598 | 2,522 |
| 17 Princeton University | 3,078 | 3,320 | 2,674 | 2,190 | 1,976 | 2,196 | 1,996 | 1,836 |
| 18 University of Michigan | 2,454 | 1,646 | 1,590 | 1,557 | 1,745 | 1,392 | 1,488 | 1,404 |
| 19 VA Polytech Inst & St U | 2,406 | 2,374 | 1,738 | 1,547 | 1,176 | 1,371 | 994 | 920 |
| 20 UT MD Anderson Cancer Ctr | 2,358 | 2,265 | 1,990 | 1,676 | 1,047 | 1,019 | 831 | 749 |
| Total, 1st 20 insts. | 116,968 | 113,722 | 109,028 | 92,635 | 90,862 | 89,245 | 87,914 | 74,372 |
| 21 Mass Inst of Technology | 2,354 | 2,300 | 2,194 | 2,474 | 2,245 | 2,215 | 2,126 | 2,414 |
| 22 Purdue University | 2,353 | 1,967 | 1,793 | 1,880 | 1,820 | 1,695 | 1,314 | 1,291 |
| 23 Florida State University | 2,306 | 2,494 | 2,337 | 2,128 | 722 | 638 | 671 | 1,574 |
| 24 Univ of Ill Urbana | 2,233 | 2,242 | 1,872 | 2,382 | 1,378 | 1,490 | 1,317 | 1,521 |
| 25 University of Georgia | 2,170 | 1,729 | 1,472 | 1,484 | 277 | 355 | 389 | 369 |
| 26 SUNY at Stony Brook | 2,166 | 1,513 | 1,350 | 1,069 | 1,425 | 1,014 | 988 | 971 |
| 27 Pennsylvania State Univ | 2,104 | 1,725 | 1,181 | 1,245 | 1,372 | 1,118 | 930 | 907 |
| 28 Harvard University | 2,060 | 2,174 | 1,362 | 1,621 | 2,049 | 1,773 | 1,362 | 1,621 |
| 29 University of Florida | 1,948 | 1,994 | 1,604 | 1,375 | 1,216 | 1,427 | 1,232 | 1,106 |
| 30 University of Chicago | 1,913 | 1,912 | 1,742 | 1,837 | 1,541 | 1,486 | 1,479 | 1,557 |
| Total, 1st 30 insts. | 138,575 | 133,772 | 125,935 | 110,130 | 104,907 | 102,456 | 99,722 | 86,703 |
| 31 Univ of Ill Chicago | 1,904 | 1,657 | 1,453 | 1,294 | 1,370 | 1,229 | 1,130 | 1,003 |
| 32 Carnegie-Mellon Univ | 1,766 | 1,922 | 1,709 | 1,190 | 1,499 | 1,671 | 1,617 | 1,120 |
| 33 University of Arizona | 1,762 | 1,850 | 1,839 | 1,152 | 1,386 | 1,509 | 1,563 | 991 |
| 34 Clemson University | 1,674 | 1,850 | 1,747 | 1,839 | 431 | 592 | 664 | 1,020 |
| 35 Ohio State University | 1,645 | 1,393 | 1,113 | 881 | 1,346 | 1,169 | 872 | 678 |
| 36 Univ. Of Tennessee System | 1,590 | 1,808 | 1,975 | 785 | 325 | 452 | 561 | 278 |
| 37 Univ Alabama Huntsville | 1,576 | 1,472 | 804 | 670 | 1,009 | 934 | 709 | 662 |
| 38 Univ of Cal San Diego | 1,541 | 1,553 | 1,505 | 1,478 | 1,478 | 1,525 | 1,448 | 1,449 |
| 39 Rensselaer Polytech Inst | 1,529 | 1,561 | 1,291 | 768 | 736 | 919 | 648 | 433 |
| 40 Yale University | 1,421 | 1,279 | 1,152 | 932 | 1,279 | 1,138 | 1,067 | 883 |
| Total, 1st 40 insts. | 155,003 | 150,117 | 140,523 | 121,119 | 115,766 | 113,594 | 110,001 | 95,220 |
| 41 Texas A & M University | 1,400 | 1,187 | 859 | 1,759 | 1,156 | 1,041 | 788 | 604 |
| 42 Georgia Institute of Tech | 1,365 | 1,046 | 656 | 604 | 1,769 | 587 | 392 | 358 |
| 43 Rice University | 1,349 | 1,192 | 1,191 | 825 | 1,309 | 1,155 | 1,191 | 823 |
| 44 Univ of NC at Chapel Hill | 1,328 | 1,492 | 1,372 | 1,349 | 1,233 | 1,462 | 1,290 | 1,321 |
| 45 Louisiana State Univ | 1,315 | 2,562 | 2,723 | 2,433 | 289 | 224 | 195 | 220 |
| 46 Univ of Massachusetts | 1,271 | 1,505 | 1,224 | 1,066 | 1,083 | 1,352 | 1,175 | 983 |
| 47 Univ of Southern Cal | 1,214 | 1,054 | 1,051 | 867 | 828 | 841 | 708 | 578 |
| 48 Univ. of Colorado | 1,188 | 1,017 | 1,042 | 928 | 1,132 | 990 | 995 | 760 |
| 49 University of Virginia | 1,173 | 1,216 | 960 | 748 | 959 | 964 | 797 | 603 |
| 50 University of Utah | 1,161 | 1,070 | 1,015 | 1,213 | 967 | 847 | 917 | 1,087 |
| Total, 1st 50 insts. | 167,767 | 163,458 | 152,616 | 132,991 | 125,491 | 123,057 | 118,449 | 102,557 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-56. Total and federally financed R&D expenditures in the mathematical sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Indiana University | 1,102 | 1,236 | 1,256 | 815 | 812 | 751 | 661 | 542 |
| 52 CUNY Grad Sch & Univ Ctr | 1,046 | 1,427 | 1,441 | 673 | 1,035 | 132 | 249 | 673 |
| 53 Columbia Univ Main Div | 1,043 | 1,164 | 1,125 | 1,364 | 1,042 | 1,127 | 1,100 | 1,352 |
| 54 Univ of Pennsylvania | 1,013 | 750 | 699 | 1,003 | 892 | 741 | 699 | 975 |
| 55 Univ of South Carolina | 979 | 577 | 497 | 1,390 | 494 | 371 | 298 | 340 |
| 56 Northwestern University | 973 | 736 | 590 | 570 | 766 | 655 | 546 | 529 |
| 57 Washington University | 947 | 972 | 1,046 | 995 | 881 | 832 | 944 | 829 |
| 58 U of Houston | 908 | 835 | 697 | 769 | 478 | 486 | 525 | 568 |
| 59 Univ of Cal Santa Barbara | 905 | 1,232 | 1,285 | 1,108 | 682 | 937 | 894 | 759 |
| 60 Univ of Ark Fayetteville | 893 | 750 | 632 | 707 | 213 | 138 | 84 | 59 |
| Total, 1st 60 insts. | 177,576 | 172,137 | 160,884 | 142,385 | 132,786 | 129,227 | 124,449 | 109,183 |
| 61 Univ of Texas at Austin | 890 | 947 | 708 | 794 | 645 | 651 | 513 | 659 |
| 62 University of Oklahoma | 857 | 586 | 773 | 523 | 232 | 205 | 263 | 134 |
| 63 California Inst of Tech | 849 | 623 | 484 | 517 | 836 | 604 | 467 | 501 |
| 64 Oregon State University | 847 | 676 | 648 | 639 | 448 | 469 | 415 | 345 |
| 65 University of Pittsburgh | 797 | 858 | 1,472 | 1,568 | 582 | 685 | 1,307 | 1,358 |
| 66 University of Connecticut | 788 | 711 | 498 | 406 | 397 | 394 | 282 | 217 |
| 67 University of Iowa | 782 | 833 | 905 | 802 | 402 | 538 | 645 | 551 |
| 68 The University of Alabama | 761 | 571 | 452 | 503 | 60 | 32 | 34 | 62 |
| 69 Arizona State University | 728 | 569 | 239 | 225 | 461 | 433 | 213 | 159 |
| 70 Colorado School of Mines | 724 | 802 | 633 | 759 | 518 | 503 | 286 | 467 |
| Total, 1st 70 insts. | 185,599 | 179,313 | 167,696 | 149,121 | 137,367 | 133,741 | 128,874 | 113,636 |
| 71 University of Dayton | 692 | 259 | 310 | 340 | 637 | 216 | 257 | 287 |
| 72 Drexel University | 673 | 535 | 490 | 409 | 108 | 78 | 38 | 67 |
| 73 University of Wyoming | 663 | 817 | 175 | 294 | 608 | 801 | 157 | 292 |
| 74 Univ of Cal Riverside | 654 | 682 | 659 | 642 | 324 | 347 | 365 | 358 |
| 75 Boston University | 650 | 528 | 778 | 971 | 537 | 433 | 633 | 959 |
| 76 Wesleyan University | 648 | 584 | 232 | 58 | 1271 | 144 | 149 | 47 |
| 77 Colorado State University | 626 | 409 | 330 | 377 | 448 | 312 | 229 | 351 |
| 78 Union College (NY) | 622 | 562 | 567 | 3531 | 961 | 491 | 231 | 181 |
| 79 Duke University | 597 | 524 | 404 | 287 | 502 | 454 | 399 | 258 |
| 80 Brandeis University | 591 | 555 | 442 | 5651 | 535 | 487 | 375 | 4241 |
| Total, 1st 80 insts. | 192,015 | 184,768 | 172,083 | 153,417 | 141,289 | 137,062 | 131,499 | 116,697 |
| 81 Univ Alabama Birmingham | 587 | 449 | 299 | 286 | 164 | 118 | 193 | 18 |
| 82 University of Delaware | 548 | 546 | 645 | 666 | 415 | 433 | 457 | 508 |
| 83 U of MD Baltimore County | 523 | 423 | 269 | 145 | 519 | 406 | 267 | 141 |
| 84 Kans St U - Ag & App Sci | 512 | 438 | 404 | 393 | 169 | 109 | 107 | 126 |
| 85 Washington State Univ | 504 | 486 | 428 | 467 | 339 | 367 | 403 | 418 |
| 86 Univ of Cal Davis | 499 | 713 | 694 | 823 | 426 | 571 | 517 | 458 |
| 87 Kent State University | 498 | 637 | 212 | 236 | 396 | 408 | 132 | 199 |
| 88 Michigan State University | 478 | 760 | 895 | 887 | 374 | 585 | 694 | 645 |
| 89 Oklahoma State University | 466 | 327 | 605 | 388 | 219 | 192 | 169 | 127 |
| 90 Dartmouth College | 459E | 367 | 220 | 58 | 2671 | 242 | 189 | 53E |
| Total, 1st 90 insts. | 197,089 | 189,914 | 176,754 | 157,766 | 144,577 | 140,493 | 134,627 | 119,390 |
| 91 University of Notre Dame | 443 | 461 | 282 | 269 | 365 | 424 | 264 | 250 |
| 92 Northern Illinois Univ | 4311 | 342 | 389 | 445E | 771 | 70 | 93 | 112 |
| 93 Univ of Southwestern LA | 426 | 435 | 338 | 408 | 30 | 75 | 25 | 22 |
| 94 Clarkson University | 416 | 456 | 616 | 772 | 373 | 425 | 577 | 722 |
| 95 Auburn University | 409 | 235 | 147 | 87 | 92 | 148 | 96 | 23 |
| 96 US Naval Postgrad School | 401 | 722 | 672 | 765 | 401 | 722 | 672 | 765 |
| 97 Tulane University | 394 | 577 | 231 | 221 | 188 | 400 | 139 | 131 |
| 98 Oakland University | 3871 | 333 | 63 | 59 | 01 | 0 | 0 | 0 |
| 99 University of Kentucky | 373 | 505 | 467 | 344 | 334 | 476 | 424 | 307 |
| 100 Old Dominion U Res Fdn | 371 | 245 | 173 | 96 | 371 | 245 | 173 | 96 |
| Total, 1st 100 insts. | 201,140 | 194,225 | 180,132 | 161,232 | 146,808 | 143,478 | 137,090 | 121,818 |
| Total, all other sampled insts. | 17,185 | 17,740 | 18,972 | 15,640 | 10,629 | 11,071 | 12,169 | 9,560 |
| Estimated total non-sampled insts. | 2,972 | 2,666 | 0 | 0 | 1,251 | 1,440 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-57. Total and federally financed R&D expenditures in the computer sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 502,623 | 468,270 | 410,157 | 373,114 | 333,615 | 317,911 | 289,014 | 257,121 |
| 1 Johns Hopkins Univ | 63,497 | 68,832 | 54,337 | 51,644 | 63,383 | 68,748 | 54,206 | 51,595 |
| 2 Carnegie-Mellon Univ | 44,808 | 45,946 | 39,261 | 35,076 | 33,951 | 32,412 | 29,765 | 26,531 |
| 3 Univ of Southern Cal | 30,718 | 32,092 | 27,896 | 22,472 | 27,705 | 28,850 | 25,771 | 21,031 |
| 4 Cornell University | 21,327 | 16,325 | 14,102 | 12,648 | 17,457 | 12,433 | 11,044 | 9,845 |
| 5 Univ of Ill Urbana | 15,773 | 14,721 | 14,668 | 14,592 | 7,509 | 7,291 | 6,786 | 6,719 |
| 6 Georgia Institute of Tech | 15,295 | 17,522 | 13,325 | 10,030 | 8,624 | 9,836 | 7,195 | 5,262 |
| 7 Stanford University | 13,560 | 12,752 | 13,665 | 12,275 | 12,008 | 11,397 | 12,186 | 10,631 |
| 8 Mass Inst of Technology | 12,343 | 11,303 | 10,295 | 10,554 | 8,858 | 8,447 | 7,914 | 7,994 |
| 9 University of Minnesota | 11,721 | 1,965 | 1,363 | 1,605 | 8,584 | 989 | 858 | 722 |
| 10 Syracuse University | 10,351 | 8,776 | 12,956 | 9,517 | 5,211 | 4,287 | 9,730 | 4,823 |
| Total, 1st 10 insts. | 239,393 | 230,234 | 201,868 | 180,413 | 193,290 | 184,690 | 165,455 | 145,153 |
| 11 West Virginia University | 10,211 | 4,544 | 673 | 254 | 359 | 413 | 421 | 132 |
| 12 New Mexico State Univ | 9,658 | 8,154 | 12,684 | 20,613 | 8,590 | 7,172 | 9,705 | 14,949 |
| 13 Univ of Texas at Austin | 9,653 | 10,479 | 10,322 | 11,200 | 1,852 | 3,456 | 3,588 | 4,558 |
| 14 Univ of MD College Park | 9,240 | 8,054 | 7,339 | 6,649 | 2,875 | 2,212 | 2,310 | 2,814 |
| 15 Univ of Massachusetts | 8,504 | 8,213 | 7,913 | 6,948 | 6,508 | 6,373 | 6,527 | 5,721 |
| 16 Univ of Pennsylvania | 7,970 | 7,415 | 6,836 | 3,661 | 6,114 | 5,163 | 4,193 | 4,222 |
| 17 University of Michigan | 7,688 | 6,491 | 1,459 | 4,101 | 2,941 | 3,395 | 741 | 729 |
| 18 Univ of Cal San Diego | 7,202 | 5,521 | 5,560 | 4,776 | 2,985 | 2,483 | 2,880 | 2,749 |
| 19 New York University | 6,903 | 8,179 | 7,136 | 7,003 | 6,286 | 7,049 | 5,875 | 5,707 |
| 20 Univ of NC at Chapel Hill | 6,636 | 6,563 | 5,312 | 4,699 | 4,187 | 4,040 | 3,276 | 2,685 |
| Total, 1st 20 insts. | 323,058 | 303,847 | 267,102 | 252,317 | 235,987 | 226,446 | 204,971 | 189,419 |
| 21 Yale University | 5,899 | 8,065 | 9,928 | 5,803 | 5,045 | 7,110 | 8,997 | 4,836 |
| 22 Rice University | 5,369 | 3,030 | 1,799 | 1,141 | 5,046 | 2,511 | 1,381 | 854 |
| 23 Brown University | 5,029 | 4,592 | 4,096 | 3,797 | 2,316 | 1,950 | 1,549 | 1,214 |
| 24 Clemson University | 5,018 | 4,003 | 1,530 | 1,441 | 661 | 1,583 | 951 | 727 |
| 25 Washington University | 4,361 | 3,355 | 4,036 | 3,717 | 2,591 | 2,481 | 3,291 | 3,354 |
| 26 Rutgers the St Univ of NJ | 4,310 | 3,164 | 3,256 | 2,856 | 1,731 | 1,522 | 1,672 | 1,684 |
| 27 Princeton University | 4,293 | 2,016 | 4,634 | 2,590 | 2,842 | 3,165 | 3,145 | 1,987 |
| 28 Iowa St U of Sci & Tech | 4,232 | 4,419 | 4,865 | 3,925 | 80 | 40 | 0 | 17 |
| 29 Texas A & M University | 4,075 | 2,805 | 2,584 | 2,531 | 1,787 | 1,379 | 297 | 4 |
| 30 Univ of Wis-Madison | 3,966 | 4,912 | 2,616 | 3,173 | 2,979 | 4,034 | 1,684 | 2,255 |
| Total, 1st 30 insts. | 369,610 | 346,208 | 306,246 | 283,291 | 261,065 | 252,221 | 227,938 | 206,351 |
| 31 Univ of Cal Los Angeles | 3,938 | 3,622 | 4,120 | 4,797 | 2,618 | 1,989 | 2,395 | 3,296 |
| 32 Univ of Cal Irvine | 3,863 | 2,882 | 2,750 | 2,107 | 3,140 | 2,303 | 2,055 | 1,808 |
| 33 Columbia Univ Main Div | 3,419 | 3,882 | 3,125 | 2,554 | 2,523 | 2,742 | 2,241 | 1,898 |
| 34 University of Georgia | 3,383 | 3,480 | 3,444 | 3,359 | 1,802 | 2,154 | 2,071 | 2,033 |
| 35 California Inst of Tech | 3,347 | 3,458 | 2,966 | 1,925 | 2,542 | 2,428 | 1,921 | 463 |
| 36 Univ. Of Tennessee System | 3,270 | 2,586 | 2,832 | 1,436 | 1,462 | 1,272 | 1,733 | 492 |
| 37 SUNY at Buffalo | 3,128 | 2,272 | 1,901 | 973 | 1,986 | 1,231 | 1,290 | 715 |
| 38 Purdue University | 3,033 | 3,177 | 3,875 | 2,127 | 2,375 | 2,611 | 3,455 | 1,872 |
| 39 Univ. of Colorado | 3,010 | 2,935 | 2,289 | 1,923 | 2,282 | 1,823 | 1,787 | 1,723 |
| 40 University of Washington | 2,936 | 2,820 | 2,293 | 2,342 | 2,777 | 2,801 | 2,040 | 2,143 |
| Total, 1st 40 insts. | 402,937 | 377,322 | 335,841 | 306,834 | 284,572 | 273,575 | 247,926 | 222,794 |
| 41 University of Utah | 2,896 | 2,920 | 2,458 | 2,534 | 1,804 | 2,148 | 1,978 | 2,329 |
| 42 Univ Alabama Huntsville | 2,738 | 2,928 | 1,233 | 217 | 1,558 | 1,837 | 793 | 211 |
| 43 University of Virginia | 2,729 | 2,756 | 2,400 | 1,248 | 2,132 | 2,198 | 1,982 | 828 |
| 44 University of Florida | 2,533 | 1,406 | 625 | 673 | 1,207 | 419 | 414 | 445 |
| 45 Univ of Southwestern LA | 2,507 | 2,435 | 284 | 1,096 | 255 | 132 | 139 | 219 |
| 46 University of Arizona | 2,496 | 2,491 | 2,038 | 2,024 | 1,724 | 1,857 | 1,617 | 1,603 |
| 47 Rensselaer Polytech Inst | 2,259 | 1,548 | 1,715 | 791 | 1,088 | 950 | 861 | 446 |
| 48 Duke University | 2,099 | 1,697 | 1,768 | 1,469 | 1,786 | 1,509 | 1,379 | 1,019 |
| 49 Southern Ill U-Carbondale | 1,977 | 2,444 | 1,714 | 1,483 | 0 | 0 | 0 | 0 |
| 50 University of Rochester | 1,897 | 2,630 | 2,397 | 2,260 | 1,725 | 2,096 | 2,216 | 1,843 |
| Total, 1st 50 insts. | 427,068 | 400,577 | 352,473 | 320,629 | 297,851 | 286,721 | 259,305 | 231,737 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-57. Total and federally financed R&D expenditures in the computer sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Harvard University | 1,849 | 1,222 | 1,078 | 361 | 1,532 | 1,108 | 1,078 | 361 |
| 52 M J Inst of Technology | 1,815 | 2,189 | 553 | 796 | 0 | 80 | 70 | 0 |
| 53 Oregon Grad Inst Sci/Tech | 1,672 | 1,645 | 921 | 743 | 1,577 | 1,471 | 633 | 415 |
| 54 University of Connecticut | 1,632 | 1,386 | 1,210 | 853 | 1,471 | 1,196 | 286 | 238 |
| 55 Indiana University | 1,600 | 1,391 | 1,010 | 1,438 | 1,313 | 1,189 | 908 | 1,314 |
| 56 Univ of Cal Santa Barbara | 1,591 | 1,128 | 1,342 | 1,440 | 1,206 | 837 | 879 | 837 |
| 57 University of Oklahoma | 1,587 | 926 | 475 | 1,363 | 522 | 276 | 108 | 472 |
| 58 N C State Univ at Raleigh | 1,570 | 1,423 | 715 | 284 | 825 | 790 | 672 | 282 |
| 59 SUNY at Stony Brook | 1,501 | 1,699 | 1,613 | 1,978 | 1,137 | 1,322 | 1,185 | 1,688 |
| 60 New York Inst Technology | 1,486 | 2,2391 | 3,1621 | 3,390 | 0 | 01 | 1811 | 191 |
| Total, 1st 60 insts. | 443,371 | 415,825 | 364,552 | 333,275 | 306,111 | 293,990 | 265,305 | 237,535 |
| 61 Pennsylvania State Univ | 1,449 | 1,135 | 811 | 340 | 837 | 685 | 524 | 225 |
| 62 Southern Methodist Univ | 1,4471 | 972 | 1,182 | 1,406 | 1,2081 | 686 | 1,156E | 1,308E |
| 63 Univ of Missouri Kan City | 1,439 | 1,502 | 1,502 | 682 | 0 | 0 | 0 | 0 |
| 64 Arizona State University | 1,436 | 1,110 | 913 | 719 | 561 | 833 | 623 | 168 |
| 65 San Diego State Univ | 1,396 | 1,291 | 1,180 | 1,213 | 1,004 | 1,123 | 1,130 | 1,213 |
| 66 University of Delaware | 1,340 | 1,37 | 530 | 612 | 1,033 | 1,154 | 269 | 73 |
| 67 Univ of Cal Berkeley | 1,331 | 5,1 | 685 | 451 | 287 | 137 | 122 | 32 |
| 68 US Naval Postgrad School | 1,243 | 1,732 | 1,818 | 1,649 | 1,234 | 1,713 | 1,818 | 1,580 |
| 69 The University of Alabama | 1,213 | 1,311 | 1,344 | 1,837 | 0 | 48 | 244 | 691 |
| 70 Ohio State University | 1,163 | 814 | 1,040 | 749 | 795 | 574 | 700 | 656 |
| Total, 1st 70 insts. | 456,828 | 427,590 | 375,557 | 342,933 | 313,070 | 300,943 | 271,891 | 243,481 |
| 71 Univ of Nebraska-Lincoln | 1,140 | 964 | 753 | 588 | 388 | 359 | 267 | 235 |
| 72 Georgetown University | 1,114 | 660 | 872 | 0 | 856 | 481 | 629 | 0 |
| 73 VA Polytech Inst & St U | 1,032 | 824 | 1,048 | 1,021 | 342 | 226 | 121 | 425 |
| 74 Wright State University | 1,028 | 0 | 1 | 8 | 662 | 0 | 0 | 0 |
| 75 Univ of South Carolina | 1,015 | 1,593 | 222 | 258 | 69 | 67 | 56 | 33 |
| 76 University of Chicago | 1,009 | 631 | 442 | 236 | 970 | 611 | 349 | 182 |
| 77 University of Iowa | 963 | 1,153 | 1,012 | 1,210 | 101 | 175 | 60 | 54 |
| 78 Kent State University | 917 | 0 | 13 | 6 | 917 | 0 | 13 | 6 |
| 79 University of Pittsburgh | 876 | 556 | 522 | 387 | 554 | 317 | 272 | 203 |
| 80 Northwestern University | 871 | 709 | 769 | 555 | 265 | 339 | 346 | 320 |
| Total, 1st 80 insts. | 466,793 | 434,680 | 381,211 | 347,202 | 318,194 | 303,518 | 274,004 | 244,939 |
| 81 Oregon State University | 858 | 537 | 573 | 462 | 289 | 168 | 190 | 197 |
| 82 Old Dominion U Res Fdn | 839 | 546 | 308 | 167 | 617 | 294 | 304 | 150 |
| 83 Northeastern University | 824 | 562 | 310 | 183 | 778 | 562 | 310 | 183 |
| 84 University of Lowell | 818 | 658 | 273 | 60 | 0 | 0 | 0 | 0 |
| 85 Georgia State University | 812 | 552 | 485 | 188 | 0 | 0 | 0 | 40 |
| 86 Univ of Hawaii-Manoa | 798 | 88 | 73 | 49 | 793 | 86 | 35 | 20 |
| 87 College of William & Mary | 768 | 525 | 268 | 105 | 412 | 402 | 225 | 105 |
| 88 Florida State University | 721 | 944 | 658 | 703 | 102 | 160 | 161 | 63 |
| 89 Auburn University | 701 | 695 | 386 | 779 | 340 | 245 | 200 | 463 |
| 90 Univ of Texas at Dallas | 690 | 534 | 326 | 423 | 163 | 126 | 212 | 212 |
| Total, 1st 90 insts. | 474,622 | 440,321 | 384,871 | 350,321 | 321,688 | 305,561 | 275,641 | 246,372 |
| 91 George Mason University | 688 | 535 | 386 | 884E | 255 | 76 | 74 | 82 |
| 92 Univ of Central Florida | 671 | 436 | 112 | 1621 | 388 | 236 | 33 | 981 |
| 93 Louisiana State Univ | 639 | 930 | 511 | 523 | 37 | 55 | 65 | 117 |
| 94 Air Force Inst of Tech/Nr | 634 | 5351 | 434 | 139 | 634 | 5351 | 434 | 139 |
| 95 Univ of Cal Davis | 631 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 96 SUNY at Albany | 630 | 452 | 363 | 95 | 462 | 319 | 263 | 0 |
| 97 Jackson State University | 607 | 651 | 384 | 45 | 399 | 651 | 384 | 45 |
| 98 Oklahoma State University | 592 | 702 | 135 | 78 | 104 | 170 | 0 | 0 |
| 99 Rockefeller University | 585 | 653 | 608 | 623 | 0 | 10 | 145 | 250 |
| 100 NC Ag & Tech State Univ | 574 | 0 | 0 | 0 | 558 | 0 | 0 | 0 |
| Total, 1st 100 insts. | 480,873 | 445,215 | 387,804 | 352,870 | 324,525 | 307,613 | 277,039 | 247,103 |
| Total, all other sampled insts. | 17,545 | 19,059 | 22,353 | 20,244 | 7,683 | 8,566 | 11,975 | 10,018 |
| Estimated total non-sampled insts. | 4,205 | 3,996 | 0 | 0 | 1,407 | 1,732 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-58. R&D expenditures in the life sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 3

| Institution ranking | Life sciences total | | | | 1990 subfields | | | |
|------------------------------|---------------------|-----------|-----------|-----------|-------------------------------|-----------------------------|---------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Agri- cultural sciences | Bio- logical sciences | Medical sciences | Other |
| Total, all institutions | 8,763,473 | 8,087,563 | 7,255,727 | 6,532,850 | 1,350,591 | 2,844,472 | 4,196,183 | 372,226 |
| 1 Univ of Cal San Francisco | 238,278 | 219,446 | 193,289 | 169,436 | 0 | 0 | 238,278 | 0 |
| 2 Johns Hopkins Univ | 208,607 | 180,099 | 156,663 | 136,173 | 0 | 57,474 | 117,366 | 33,767 |
| 3 University of Minnesota | 204,590 | 187,347 | 173,579 | 162,125 | 47,070 | 36,218 | 99,238 | 22,064 |
| 4 Univ of Wis-Madison | 178,337 | 165,141 | 155,996 | 144,686 | 28,087 | 51,297 | 95,903 | 3,050 |
| 5 Univ of Cal Davis | 177,754 | 162,623 | 138,273 | 128,937 | 92,153 | 29,489 | 55,833 | 279 |
| 6 Cornell University | 166,595 | 163,640 | 149,475 | 139,389 | 42,578 | 59,731 | 75,576 | 8,710 |
| 7 University of Michigan | 162,379 | 143,184 | 131,959 | 113,493 | 153 | 54,127 | 93,805 | 14,294 |
| 8 Univ of Cal Los Angeles | 157,626 | 144,933 | 125,396 | 107,477 | 22 | 20,979 | 133,412 | 3,213 |
| 9 Baylor Col of Medicine | 155,122 | 134,681 | 106,814 | 90,179 | 0 | 68,716 | 86,406 | 0 |
| 10 University of Washington | 152,755 | 136,184 | 112,899 | 110,133 | 10,309 | 49,401 | 77,129 | 15,916 |
| Total, 1st 10 insts. | 1,802,043 | 1,637,278 | 1,444,343 | 1,302,028 | 220,372 | 407,432 | 1,072,946 | 101,293 |
| 11 Yale University | 143,093 | 132,778 | 122,179 | 111,541 | 1,063 | 54,898 | 87,132 | 0 |
| 12 Stanford University | 138,546 | 129,352 | 117,790 | 103,083 | 0 | 10,565 | 126,505 | 1,476 |
| 13 Harvard University | 136,522 | 127,771 | 117,371 | 105,468 | 0 | 68,950 | 67,571 | 0 |
| 14 Washington University | 133,337 | 111,638 | 101,874 | 89,791 | 0 | 55,023 | 74,667 | 3,647 |
| 15 Univ of Pennsylvania | 132,599 | 117,746 | 111,821 | 109,717 | 0 | 31,681 | 100,918 | 0 |
| 16 Columbia Univ Main Div | 113,392 | 100,063 | 92,481 | 86,538 | 0 | 47,751 | 65,322 | 319 |
| 17 University of Georgia | 111,742 | 103,667 | 100,377 | 89,640 | 54,494 | 42,588 | 14,660 | 0 |
| 18 Univ of Cal San Diego | 111,314 | 99,224 | 89,775 | 81,410 | 0 | 11,405 | 99,909 | 0 |
| 19 Duke University | 111,309 | 102,646 | 90,984 | 70,976 | 1,740 | 30,788 | 77,747 | 1,034 |
| 20 Texas A & M University | 106,885 | 102,993 | 101,181 | 95,841 | 38,997 | 63,850 | 3,229 | 809 |
| Total, 1st 20 insts. | 3,040,782 | 2,765,156 | 2,490,176 | 2,246,033 | 316,667 | 824,931 | 1,790,606 | 108,578 |
| 21 Univ Alabama Birmingham | 104,185 | 94,157 | 80,302 | 68,363 | 0 | 31,192 | 71,806 | 1,187 |
| 22 Ohio State University | 93,307 | 91,583 | 82,221 | 67,763 | 33,045 | 32,314 | 24,543 | 3,405 |
| 23 Univ of NC at Chapel Hill | 92,270 | 91,710 | 80,351 | 70,673 | 0 | 44,205 | 41,524 | 6,541 |
| 24 University of Pittsburgh | 90,285 | 84,583 | 74,538 | 60,019 | 0 | 3,214 | 67,811 | 19,260 |
| 25 Univ of Cal Berkeley | 87,951 | 83,990 | 72,444 | 70,457 | 46,886 | 27,161 | 13,809 | 95 |
| 26 UT SW Medical Ctr-Dallas | 85,919 | 79,920 | 70,392 | 63,907 | 0 | 36,474 | 49,445 | 0 |
| 27 University of Rochester | 85,078 | 80,283 | 75,446 | 65,007 | 0 | 29,701 | 51,965 | 3,412 |
| 28 New York University | 84,854 | 76,883 | 73,643 | 73,700 | 0 | 28,582 | 41,404 | 14,868 |
| 29 UT MD Anderson Cancer Ctr | 84,819 | 80,032 | 70,305 | 61,366 | 0 | 38,545 | 45,258 | 1,016 |
| 30 Yeshiva University | 83,968 | 74,486 | 75,371 | 73,697 | 0 | 21,831 | 43,664 | 18,473 |
| Total, 1st 30 insts. | 3,933,418 | 3,602,783 | 3,245,189 | 2,919,985 | 396,598 | 1,118,150 | 2,241,835 | 176,835 |
| 31 Univ of Southern Cal | 83,856 | 82,906 | 79,493 | 74,004 | 0 | 3,903 | 79,666 | 287 |
| 32 Pennsylvania State Univ | 83,743 | 74,665 | 64,332 | 59,987 | 37,407 | 30,910 | 13,799 | 1,627 |
| 33 Univ of MD Balt Prof Sch | 83,689 | 75,854 | 68,787 | 57,931 | 0 | 12,553 | 66,951 | 4,185 |
| 34 Louisiana State Univ | 83,104 | 73,805 | 69,864 | 63,853 | 36,396 | 23,704 | 22,365 | 639 |
| 35 University of Iowa | 82,386 | 78,000 | 68,474 | 56,492 | 0 | 22,498 | 58,626 | 1,262 |
| 36 University of Arizona | 82,067 | 75,080 | 68,694 | 60,148 | 19,048 | 25,258 | 35,308 | 2,453 |
| 37 University of Florida | 81,616 | 73,051 | 63,488 | 62,583 | 25,193 | 20,537 | 31,824 | 4,062 |
| 38 University of Chicago | 79,769 | 74,047 | 66,881 | 66,372 | 0 | 28,992 | 49,984 | 793 |
| 39 Univ. of Colorado | 75,398 | 72,885 | 64,560 | 57,596 | 0 | 26,781 | 45,307 | 3,310 |
| 40 Emory University | 74,880 | 58,197 | 55,798 | 53,914 | 0 | 16,628 | 44,527 | 13,725 |
| Total, 1st 40 insts. | 4,743,926 | 4,341,273 | 3,915,560 | 3,524,865 | 514,642 | 1,329,914 | 2,690,192 | 209,178 |
| 41 Northwestern University | 74,268 | 66,589 | 58,757 | 52,821 | 0 | 29,865 | 35,483 | 8,920 |
| 42 Michigan State University | 73,035 | 73,509 | 70,977 | 70,842 | 44,216 | 20,567 | 7,602 | 650 |
| 43 University of Connecticut | 72,266 | 69,134 | 56,117 | 54,443 | 5,171 | 28,660 | 37,888 | 547 |
| 44 N C State Univ at Raleigh | 71,258 | 71,026 | 63,769 | 64,507 | 36,440 | 31,752 | 0 | 3,066 |
| 45 Univ. Of Tennessee System | 68,976 | 70,417 | 56,972 | 55,325 | 21,314 | 9,043 | 37,266 | 1,353 |
| 46 University of Miami | 68,395 | 67,952 | 52,146 | 47,240 | 0 | 16,371 | 51,930 | 94 |
| 47 Purdue University | 66,601 | 60,119 | 54,592 | 51,815 | 21,867 | 34,342 | 9,354 | 1,038 |
| 48 SUNY at Buffalo | 66,568 | 65,589 | 57,475 | 53,576 | 0 | 34,412 | 27,757 | 4,399 |
| 49 Iowa St U of Sci & Tech | 65,403 | 56,107 | 46,918 | 41,546 | 28,453 | 26,160 | 6,182 | 4,608 |
| 50 Univ of Missouri Columbia | 64,257 | 57,910 | 52,744 | 49,151 | 29,803 | 21,177 | 12,918 | 359 |
| Total, 1st 50 insts. | 5,434,953 | 4,999,625 | 4,486,027 | 4,066,131 | 701,906 | 1,582,263 | 2,916,572 | 234,212 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-58. R&D expenditures in the life sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 3

| Institution ranking | Life sciences total ¹ | | | | 1990 subfields | | | |
|-------------------------------|----------------------------------|-----------|-----------|-----------|-------------------------------|-----------------------------|---------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Agri- cultural sciences | Bio- logical sciences | Medical sciences | Other |
| 51 Univ of Med & Dent of N.J. | 64,229 | 54,451 | 42,027 | 32,222 | 0 | 21,071 | 43,158 | 0 |
| 52 CUNY Mt Sinai Sch of Med | 63,752 | 56,856 | 49,727 | 46,137 | 0 | 16,934 | 46,818 | 0 |
| 53 Rockefeller University | 62,718 | 63,371 | 58,086 | 56,667 | 0 | 58,846 | 3,872 | 0 |
| 54 Case Western Reserve Univ | 60,411E | 54,525 | 47,891 | 45,114 | 0E | 21,901E | 38,510E | 0E |
| 55 Univ of Ill Chicago | 59,462 | 58,061 | 50,315 | 41,913 | 0 | 22,588 | 34,917 | 1,957 |
| 56 Rutgers the St Univ of NJ | 59,183 | 54,452 | 46,470 | 40,999 | 19,184 | 29,044 | 7,708 | 3,247 |
| 57 Virginia Commonwealth Univ | 58,528 | 49,466 | 40,761 | 40,524 | 0 | 20,527 | 37,074 | 927 |
| 58 Vanderbilt University | 57,246 | 48,996 | 45,549 | 30,650 | 0 | 28,932 | 27,906 | 408 |
| 59 Indiana University | 55,502 | 48,378 | 41,979 | 37,444 | 0 | 15,469 | 38,275 | 1,758 |
| 60 University of Utah | 55,460 | 49,974 | 46,648 | 43,372 | 0 | 19,310 | 35,543 | 607 |
| Total, 1st 60 insts. | 6,031,444 | 5,538,155 | 4,955,480 | 4,481,173 | 721,090 | 1,836,885 | 3,230,353 | 243,116 |
| 61 Univ of Nebraska-Lincoln | 55,349 | 49,093 | 44,801 | 41,321 | 45,945 | 4,942 | 4,462 | 0 |
| 62 Univ of Massachusetts | 54,677 | 66,542 | 50,167 | 42,855 | 8,385 | 19,039 | 21,047 | 6,206 |
| 63 Boston University | 54,067 | 50,721 | 48,717 | 47,224 | 0 | 2,426 | 50,688 | 953 |
| 64 Univ of Cal Irvine | 53,261 | 44,441 | 39,364 | 33,426 | 0 | 14,805 | 38,456 | 0 |
| 65 VA Polytech Inst & St U | 52,477 | 47,777 | 43,579 | 37,011 | 34,642 | 13,950 | 3,614 | 1,131 |
| 66 University of Kentucky | 51,789 | 49,192 | 55,811 | 44,088 | 27,305 | 1,202 | 21,254 | 2,028 |
| 67 University of Cincinnati | 51,495 | 48,512 | 45,142 | 37,124 | 0 | 28,927 | 22,568 | 0 |
| 68 Oregon State University | 51,442 | 51,912 | 50,103 | 47,643 | 27,105 | 14,968 | 2,063 | 7,306 |
| 69 University of Virginia | 51,023 | 42,708 | 40,904 | 34,830 | 0 | 20,553 | 30,327 | 143 |
| 70 Univ of Ill Urbana | 48,002 | 48,881 | 45,263 | 42,910 | 23,903 | 20,552 | 3,547 | 0 |
| Total, 1st 70 insts. | 6,555,026 | 6,037,934 | 5,412,331 | 4,889,605 | 888,375 | 1,977,389 | 3,428,379 | 260,883 |
| 71 Univ of Cal Riverside | 47,431 | 45,750 | 44,836 | 43,796 | 41,103 | 4,113 | 2,215 | 0 |
| 72 Washington State Univ | 46,456 | 38,711 | 37,423 | 37,218 | 21,761 | 21,736 | 2,119 | 840 |
| 73 Tulane University | 46,411 | 38,787 | 36,718 | 30,271 | 0 | 4,803 | 20,413 | 21,195 |
| 74 U Tex Hlth Sci Ctr S Anto | 45,663 | 42,501 | 39,673 | 34,476 | 0 | 16,753 | 28,910 | 0 |
| 75 U Tex Hlth Sci Ctr Houstn | 44,345 | 44,893 | 41,649 | 33,701 | 0 | 15,412 | 25,535 | 3,398 |
| 76 Wayne State University | 43,871 | 40,433 | 32,995 | 24,520 | 0 | 949 | 39,574 | 3,348 |
| 77 Georgetown University | 41,120 | 43,272 | 35,828 | 28,011 | 0 | 12,112 | 29,008 | 0 |
| 78 U of VT & State Agr Coll | 41,009 | 37,781 | 33,199 | 28,409 | 4,481 | 16,274 | 18,113 | 2,141 |
| 79 Auburn University | 40,638 | 33,627 | 34,236 | 30,201 | 29,153 | 6,734 | 2,902 | 1,849 |
| 80 U Tex Med Brnch Galveston | 40,610 | 38,717 | 33,047 | 24,351 | 0 | 12,589 | 17,868 | 10,153 |
| Total, 1st 80 insts. | 6,992,580 | 6,442,406 | 5,779,935 | 5,204,559 | 984,873 | 2,088,864 | 3,615,036 | 303,807 |
| 81 Univ of South Florida | 40,589 | 31,204 | 31,902 | 30,801 | 0 | 1,232 | 39,271 | 86 |
| 82 SUNY at Stony Brook | 40,081 | 38,408 | 40,172 | 26,096 | 0 | 20,585 | 17,233 | 2,263 |
| 83 Oregon Hlth Sciences Univ | 40,070I | 33,929 | 28,854 | 25,651 | 0I | 10,519I | 27,937I | 1,614I |
| 84 Wake Forest University | 38,636 | 36,534 | 30,054 | 23,099 | 0 | 921 | 38,015 | 0 |
| 85 Mass Inst of Technology | 37,711 | 34,322 | 34,755 | 32,844 | 0 | 37,711 | 0 | 0 |
| 86 Tufts University | 37,300 | 40,168 | 43,514 | 36,694 | 4 | 30,544 | 5,625 | 1,127 |
| 87 Kans St U - Ag & App Sci | 37,289 | 35,441 | 32,178 | 30,041 | 29,423 | 7,087 | 779 | 0 |
| 88 Temple University | 37,121 | 34,089 | 30,135 | 27,545 | 0 | 23,491 | 13,618 | 12 |
| 89 Mississippi State Univ | 36,357 | 35,502 | 31,618 | 28,187 | 33,358 | 2,390 | 607 | 2 |
| 90 Colorado State University | 36,345 | 30,975 | 27,494 | 25,649 | 14,584 | 21,002 | 759 | 0 |
| Total, 1st 90 insts. | 7,374,079 | 6,792,978 | 6,110,611 | 5,491,166 | 1,062,242 | 2,244,046 | 3,758,880 | 308,911 |
| 91 Unif Serv Univ of Hlth Sc | 36,080 | 27,062 | 15,991 | 12,076 | 0 | 5,243 | 30,837 | 0 |
| 92 SUNY Hlth Sci Ctr - Syrcs | 35,193 | 31,125 | 24,541 | 21,186 | 0 | 10,570 | 24,623 | 0 |
| 93 Medical College of Wis | 34,622 | 34,951 | 33,231 | 30,218 | 0 | 11,218 | 23,404 | 0 |
| 94 Clemson University | 34,611 | 28,864 | 26,278 | 25,490 | 23,634 | 9,091 | 298 | 1,588 |
| 95 Dartmouth College | 33,439E | 28,579 | 25,037 | 21,983 | 0E | 1,121E | 32,318E | 0E |
| 96 University of Kansas | 32,597 | 29,894 | 27,132 | 26,530 | 0 | 19,102 | 10,865 | 2,630 |
| 97 Oklahoma State University | 32,289 | 29,247 | 26,868 | 24,398 | 22,355 | 8,611 | 1,278 | 45 |
| 98 Thomas Jefferson Univ | 30,969 | 29,405 | 24,231 | 20,357 | 0 | 10,164 | 17,147 | 3,658 |
| 99 University of Oklahoma | 27,424 | 24,853 | 23,088 | 19,473 | 0 | 9,352 | 16,173 | 1,899 |
| 100 Univ of P R-Mayaguez | 27,165 | 26,522 | 23,822 | 23,823 | 26,967 | 198 | 0 | 0 |
| Total, 1st 100 insts. | 7,698,468 | 7,083,480 | 6,360,830 | 5,716,700 | 1,135,198 | 2,328,716 | 3,915,823 | 318,731 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-58. R&D expenditures in the life sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 3 of 3

| Institution ranking | Life sciences total | | | | 1990 subfields | | | |
|---------------------------------------|---------------------|-----------|-----------|-----------|-------------------------------|-----------------------------|---------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Agric- ultural sciences | Bio- logical sciences | Medical sciences | Other |
| 101 University of New Mexico | 27,115 | 25,353 | 21,686E | 19,676E | 0 | 16,060 | 7,045 | 4,010 |
| 102 California Inst of Tech | 24,857 | 23,012 | 20,964 | 18,398 | 0 | 24,857 | 0 | 0 |
| 103 Med Univ of So Carolina | 23,128 | 23,017 | 20,949 | 19,658 | 0 | 8,055 | 14,884 | 189 |
| 104 SUNY Hlth Sci Ctr - Brkln | 22,873 | 20,523 | 18,374 | 17,008 | 0 | 10,750 | 12,123 | 0 |
| 105 Univ of Hawaii-Manoa | 22,662 | 20,602 | 19,951 | 18,342 | 8,866 | 7,332 | 1,009 | 5,455 |
| 106 University of Idaho | 22,172 | 21,398 | 20,263 | 16,804 | 16,497 | 4,369 | 1,289 | 17 |
| 107 Univ of Ark Fayetteville | 22,032 | 19,596 | 17,793 | 17,291 | 21,115 | 889 | 28 | 0 |
| 108 Utah State University | 21,760 | 21,746 | 18,650 | 13,791 | 12,637 | 5,087 | 4,036 | 0 |
| 109 West Virginia University | 20,625 | 21,601 | 18,044 | 16,848 | 10,225 | 3,663 | 4,709 | 2,028 |
| 110 Rush University | 20,363 | 21,213 | 19,293 | 15,904 | 0 | 4,017 | 15,393 | 953 |
| Total, 1st 110 insts. | 7,926,055 | 7,301,541 | 6,556,797 | 5,890,420 | 1,204,538 | 2,413,795 | 3,976,339 | 331,383 |
| 111 New Mexico State Univ | 19,797I | 17,488 | 15,621 | 15,671 | 10,447I | 8,179I | 1,171I | 0I |
| 112 Univ of Texas at Austin | 19,785 | 18,367 | 16,415 | 12,974 | 0 | 14,080 | 4,336 | 1,369 |
| 113 Univ of MD College Park | 19,554 | 19,742 | 17,306 | 16,525 | 4,261 | 10,632 | 0 | 4,661 |
| 114 George Washington Univ | 19,240 | 17,420 | 12,692 | 13,545 | 0 | 4,804 | 13,673 | 763 |
| 115 The Medical Col of Penna | 18,643 | 20,542 | 15,277 | 11,081 | 0 | 8,618 | 10,025 | 0 |
| 116 Montana State University | 18,593 | 17,204 | 17,056 | 15,910I | 12,144 | 6,173 | 0 | 276 |
| 117 U of Neb Med Ctr at Omaha | 17,844 | 17,291 | 14,684 | 12,492 | 0 | 11,786 | 6,058 | 0 |
| 118 Brown University | 17,654 | 16,113 | 14,115 | 13,073 | 0 | 2,077 | 13,618 | 1,959 |
| 119 Princeton University | 17,597 | 15,272 | 15,035 | 12,037 | 0 | 17,597 | 0 | 0 |
| 120 Univ of Alaska Fairbanks | 17,454 | 15,080 | 13,260E | 12,377I | 7,341 | 10,113 | 0 | 0 |
| Total, 1st 120 insts. | 8,112,216 | 7,476,060 | 6,708,258 | 6,026,105 | 1,238,731 | 2,507,854 | 4,025,220 | 340,411 |
| 121 St Louis University | 16,083 | 13,664 | 9,220 | 8,057I | 0 | 8,342 | 7,712 | 29 |
| 122 Texas Tech University | 15,486 | 15,597 | 12,875 | 12,677 | 6,993 | 3,456 | 4,999 | 35 |
| 123 Univ of South Carolina | 15,119 | 12,659 | 10,356 | 9,406 | 0 | 3,856 | 9,934 | 1,329 |
| 124 University of Mississippi | 14,649 | 13,904 | 12,735 | 10,784 | 0 | 5,547 | 8,102 | 0 |
| 125 Brandeis University | 14,303 | 13,244 | 12,154 | 11,382I | 0 | 14,303 | 0 | 0 |
| 126 Univ of Maine Orono | 13,779 | 12,228 | 11,316 | 9,733 | 7,763 | 5,828 | 0 | 188 |
| 127 New York Medical College | 13,244 | 12,958 | 13,817 | 11,794 | 0 | 7,878 | 5,366 | 0 |
| 128 Southern Ill U-Carbondale | 12,853 | 12,260 | 11,049 | 9,439 | 2,017 | 4,788 | 5,615 | 433 |
| 129 University of Wyoming | 12,216 | 12,552 | 11,578 | 10,433 | 7,082 | 4,216 | 918 | 0 |
| 130 Hahnemann University | 12,134 | 10,428 | 8,222 | 8,756 | 0 | 4,204 | 7,548 | 382 |
| Total, 1st 130 insts. | 8,252,082 | 7,605,354 | 6,821,580 | 6,128,566 | 1,262,586 | 2,571,275 | 4,075,414 | 342,807 |
| 131 Medical Col of Georgia | 12,052 | 11,363 | 9,925 | 10,053 | 0 | 6,405 | 5,379 | 268 |
| 132 University of Louisville | 12,027 | 5,760I | 7,548I | 7,188I | 0 | 4,649 | 6,339 | 1,039 |
| 133 U of Arkansas Med Sci Cam | 11,898 | 10,834 | 9,851 | 8,094 | 0 | 3,679E | 8,219E | 0 |
| 134 Carnegie-Mellon Univ | 11,400 | 11,008 | 10,741 | 9,997 | 0 | 11,400 | 0 | 0 |
| 135 Univ of Nevada - Reno | 11,364 | 9,916 | 9,389 | 7,786 | 5,633 | 4,682 | 764 | 285 |
| 136 Eastern VA Medical School | 10,496 | 8,125 | 6,614 | 4,320 | 0 | 2,951 | 7,545 | 0 |
| 137 Howard University | 10,259I | 10,078I | 9,903I | 9,720E | 0I | 3,071I | 7,188I | 0I |
| 138 Loyola Univ - Chicago | 10,236 | 9,299 | 6,578 | 5,627 | 0 | 6,026 | 4,210 | 0 |
| 139 Univ of South Alabama | 10,229 | 9,774 | 7,974 | 7,195 | 0 | 7,711 | 2,205 | 313 |
| 140 Univ of Rhode Island | 9,817 | 9,537I | 9,449 | 5,623 | 1,866 | 1,906 | 4,572 | 1,473 |
| Total, 1st 140 insts. | 8,361,860 | 7,701,048 | 6,909,552 | 6,204,169 | 1,270,085 | 2,623,755 | 4,121,835 | 346,185 |
| 141 Albany Med Ctr Grad Sch | 9,431 | 9,827 | 11,694 | 13,287 | 0 | 6,625 | 2,806 | 0 |
| 142 University of Delaware | 9,093 | 8,884 | 7,981 | 7,172 | 7,472 | 1,621 | 0 | 0 |
| 143 San Diego State Univ | 9,086 | 7,931 | 7,593 | 6,050 | 1,867 | 4,498 | 2,409 | 312 |
| 144 Creighton University | 8,929 | 7,934 | 7,647 | 5,902I | 0 | 0 | 8,929 | 0 |
| 145 SUNY Col of Env Sci & For | 7,940 | 7,329 | 5,077 | 4,996 | 1,716 | 6,202 | 6 | 16 |
| 146 Florida State University | 7,866 | 7,708 | 7,958 | 7,416 | 0 | 7,797 | 17 | 52 |
| 147 North Dakota State Univ | 7,865 | 6,666 | 5,328 | 18,324E | 5,651 | 2,073 | 141 | 0 |
| 148 South Dakota State Univ | 7,699 | 6,888 | 6,753 | 6,516 | 6,104 | 932 | 26 | 637 |
| 149 Florida A & M University | 7,539E | 8,240 | 6,265 | 6,338 | 3,614E | 3,925E | 0 | 0 |
| 150 Loma Linda University | 7,461 | 5,222 | 6,496 | 7,469E | 0 | 3,124 | 4,254 | 83 |
| Total, 1st 150 insts. | 8,444,769 | 7,777,677 | 6,982,344 | 6,287,639 | 1,296,509 | 2,660,552 | 4,140,423 | 347,285 |
| Total, all other sampled insts. | 284,885 | 273,702 | 273,383 | 245,211 | 45,442 | 159,630 | 55,282 | 24,531 |
| Estimated total non-sampled insts. | 33,819 | 36,184 | 0 | 0 | 8,640 | 24,290 | 478 | 410 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-59. Federally financed R&D expenditures in the life sciences
at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Page 1 of 3

| Institution ranking | Life sciences total | | | | 1990 subfields | | | |
|------------------------------|---------------------|-----------|-----------|-----------|-------------------------------|-----------------------------|---------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Agri- cultural sciences | Bio- logical sciences | Medical sciences | Other |
| Total, all institutions | 5,067,946 | 4,779,911 | 4,318,061 | 3,829,866 | 348,133 | 1,832,765 | 2,667,710 | 219,340 |
| 1 Univ of Cal San Francisco | 175,257 | 159,906 | 137,747 | 117,302 | 0 | 0 | 175,257 | 0 |
| 2 Johns Hopkins Univ | 163,223 | 142,388 | 123,808 | 112,368 | 0 | 42,590 | 95,721 | 24,912 |
| 3 University of Washington | 125,284 | 110,463 | 93,526 | 86,059 | 6,716 | 45,022 | 62,369 | 11,177 |
| 4 Yale University | 116,188 | 109,353 | 100,762 | 90,885 | 212 | 48,294 | 67,682 | 0 |
| 5 Stanford University | 110,547 | 104,921 | 95,226 | 85,590 | 0 | 8,120 | 101,481 | 946 |
| 6 Univ of Cal Los Angeles | 104,102 | 102,229 | 91,085 | 75,994 | 12 | 12,830 | 89,654 | 1,606 |
| 7 University of Michigan | 103,528 | 95,794 | 90,958 | 75,441 | 147 | 38,605 | 58,116 | 6,660 |
| 8 Harvard University | 102,593 | 92,840 | 86,976 | 79,708 | 0 | 58,242 | 44,351 | 0 |
| 9 Columbia Univ Main Div | 97,783 | 86,763 | 80,221 | 76,779 | 0 | 41,967 | 55,816 | 0 |
| 10 University of Minnesota | 97,634 | 96,625 | 88,316 | 79,860 | 9,423 | 23,464 | 49,199 | 15,548 |
| Total, 1st 10 insts. | 1,196,139 | 1,101,282 | 988,625 | 879,986 | 16,510 | 319,134 | 799,646 | 60,849 |
| 11 Univ of Pennsylvania | 96,957 | 87,977 | 81,143 | 77,822 | 0 | 26,756 | 70,201 | 0 |
| 12 Washington University | 93,531 | 84,052 | 76,786 | 66,897 | 0 | 38,686 | 52,455 | 2,390 |
| 13 Univ of Wis-Madison | 93,184 | 88,857 | 84,190 | 77,949 | 10,407 | 28,145 | 53,593 | 1,039 |
| 14 Univ of Cal San Diego | 90,706 | 82,372 | 75,956 | 68,352 | 0 | 10,348 | 80,358 | 0 |
| 15 Cornell University | 84,922 | 79,348 | 72,294 | 67,323 | 8,624 | 20,642 | 51,396 | 4,260 |
| 16 Duke University | 84,358 | 78,886 | 70,759 | 56,151 | 431 | 26,856 | 56,314 | 757 |
| 17 Baylor Col of Medicine | 75,793 | 69,336 | 60,825 | 49,834 | 0 | 44,003 | 31,790 | 0 |
| 18 University of Pittsburgh | 72,720 | 65,851 | 57,418 | 47,532 | 0 | 2,643 | 55,861 | 14,216 |
| 19 Univ Alabama Birmingham | 72,524 | 66,448 | 60,781 | 53,164 | 0 | 22,248 | 49,556 | 720 |
| 20 Univ of NC at Chapel Hill | 72,374 | 73,117 | 65,163 | 57,993 | 0 | 34,809 | 34,031 | 3,534 |
| Total, 1st 20 insts. | 2,033,208 | 1,877,526 | 1,693,940 | 1,503,003 | 35,972 | 574,270 | 1,335,201 | 87,765 |
| 21 University of Rochester | 69,149 | 64,950 | 60,537 | 51,113 | 0 | 26,144 | 40,893 | 2,112 |
| 22 Yeshiva University | 65,066 | 58,224 | 58,813 | 59,721 | 0 | 16,917 | 33,835 | 14,314 |
| 23 University of Chicago | 64,416 | 60,430 | 54,530 | 49,684 | 0 | 25,517 | 38,733 | 166 |
| 24 Univ of Cal Davis | 64,036 | 60,397 | 51,718 | 46,363 | 15,627 | 9,913 | 38,496 | 0 |
| 25 New York University | 63,771 | 61,409 | 57,094 | 56,060 | 0 | 21,385 | 29,109 | 13,277 |
| 26 University of Iowa | 58,187 | 57,204 | 49,428 | 42,690 | 0 | 15,575 | 42,321 | 291 |
| 27 Univ of Southern Cal | 57,813 | 57,030 | 55,158 | 51,370 | 0 | 3,317 | 54,318 | 178 |
| 28 UT SW Medical Ctr-Dallas | 54,965 | 51,254 | 48,357 | 45,382 | 0 | 25,586 | 29,379 | 0 |
| 29 Univ. of Colorado | 54,616 | 54,135 | 45,937 | 39,791 | 0 | 20,709 | 31,875 | 2,032 |
| 30 Vanderbilt University | 52,674 | 44,539 | 35,311 | 23,250 | 0 | 26,442 | 25,835 | 397 |
| Total, 1st 30 insts. | 2,637,901 | 2,447,098 | 2,210,823 | 1,968,427 | 51,599 | 765,775 | 1,699,995 | 120,532 |
| 31 Case Western Reserve Univ | 50,890 | 47,224 | 39,975 | 36,101 | 0 | 18,414 | 32,476 | 0 |
| 32 SUNY at Buffalo | 49,673 | 50,830 | 45,330 | 41,353 | 0 | 29,001 | 16,631 | 4,041 |
| 33 University of Miami | 47,724 | 44,710 | 34,863 | 26,122 | 0 | 13,862 | 33,770 | 92 |
| 34 Emory University | 47,700 | 42,675 | 40,124 | 33,447 | 0 | 13,486 | 21,868 | 12,346 |
| 35 Boston University | 45,498 | 44,376 | 42,686 | 41,249 | 0 | 2,339 | 42,592 | 477 |
| 36 CUNY Mt Sinai Sch of Med | 43,607 | 37,233 | 32,852 | 31,024 | 0 | 13,866 | 29,741 | 0 |
| 37 University of Utah | 42,728 | 40,275 | 37,428 | 37,099 | 0 | 15,808 | 26,668 | 252 |
| 38 Ohio State University | 42,665 | 40,523 | 33,563 | 27,367 | 8,816 | 17,028 | 14,620 | 2,201 |
| 39 Univ of Cal Berkeley | 41,857 | 43,518 | 40,879 | 39,645 | 12,763 | 21,239 | 7,855 | 0 |
| 40 University of Arizona | 39,626 | 37,351 | 34,344 | 30,253 | 3,731 | 14,602 | 19,747 | 1,546 |
| Total, 1st 40 insts. | 3,089,779 | 2,875,813 | 2,592,867 | 2,312,087 | 76,909 | 925,420 | 1,945,963 | 141,487 |
| 41 Virginia Commonwlt Univ | 39,440 | 33,324 | 29,881 | 30,222 | 0 | 14,671 | 24,250 | 519 |
| 42 Univ of MD Balt Prof Sch | 38,841 | 35,970 | 33,102 | 26,244 | 0 | 5,826 | 31,073 | 1,942 |
| 43 University of Florida | 36,453 | 34,902 | 33,264 | 30,173 | 8,272 | 11,563 | 15,185 | 1,433 |
| 44 Pennsylvania State Univ | 35,704 | 32,852 | 30,559 | 27,726 | 7,848 | 17,387 | 9,790 | 679 |
| 45 Northwestern University | 34,869 | 33,207 | 31,652 | 28,715 | 0 | 20,389 | 13,168 | 1,312 |
| 46 University of Georgia | 34,431 | 32,523 | 30,577 | 26,864 | 8,421 | 23,476 | 2,534 | 0 |
| 47 Univ of Cal Irvine | 34,182 | 29,586 | 26,618 | 23,027 | 0 | 11,587 | 22,595 | 0 |
| 48 Indiana University | 33,223 | 33,482 | 27,983 | 22,595 | 0 | 10,911 | 21,641 | 671 |
| 49 Univ of Med & Dent of N J | 33,185 | 27,983 | 21,849 | 16,989 | 0 | 10,025 | 23,160 | 0 |
| 50 University of Cincinnati | 32,820 | 30,550 | 27,067 | 23,479 | 0 | 20,148 | 12,672 | 0 |
| Total, 1st 50 insts. | 3,442,927 | 3,200,192 | 2,885,419 | 2,568,121 | 101,450 | 1,071,403 | 2,122,031 | 148,043 |

See explanatory information, if any, and SOURCE(S) at end of table.

BEST COPY AVAILABLE

Table B-59. Federally financed R&D expenditures in the life sciences
at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Page 2 of 3

| Institution ranking | Life sciences total | | | | 1990 subfields | | | |
|------------------------------|---------------------|-----------|-----------|-----------|-------------------------------|-----------------------------|---------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Agri- cultural sciences | Bio- logical sciences | Medical sciences | Other |
| 51 Mass Inst of Technology | 32,758 | 29,782 | 29,010 | 27,205 | 0 | 32,758 | 0 | 0 |
| 52 University of Connecticut | 32,658 | 34,893 | 30,412 | 29,451 | 1,479 | 13,751 | 17,144 | 284 |
| 53 Univ of Ill Chicago | 32,058 | 32,438 | 28,268 | 23,048 | 0 | 12,798 | 18,063 | 1,197 |
| 54 Rockefeller University | 31,375 | 36,675 | 33,428 | 33,631 | 0 | 27,671 | 3,704 | 0 |
| 55 University of Virginia | 30,665 | 26,963 | 26,394 | 23,745 | 0 | 14,893 | 15,724 | 48 |
| 56 Tufts University | 30,518 | 33,168 | 35,216 | 30,760 | 4 | 23,476 | 4,939 | 999 |
| 57 Michigan State University | 30,013 | 27,682 | 26,824 | 25,343 | 13,580 | 12,764 | 3,599 | 270 |
| 58 Univ of Massachusetts | 29,848 | 31,249 | 25,985 | 21,944 | 1,479 | 13,780 | 11,652 | 2,937 |
| 59 Wake Forest University | 29,671 | 28,334 | 22,896 | 18,596 | 0 | 382 | 29,289 | 0 |
| 60 U Tex Hlth Sci Ctr S Anto | 29,431 | 29,324 | 27,528 | 22,469 | 0 | 12,058 | 17,373 | 0 |
| Total, 1st 60 insts. | 3,751,922 | 3,510,700 | 3,171,380 | 2,824,313 | 117,992 | 1,237,734 | 2,242,418 | 153,778 |
| 61 Georgetown University | 29,137 | 29,642 | 24,368 | 18,995 | 0 | 9,817 | 19,320 | 0 |
| 62 Louisiana State Univ | 28,599 | 26,177 | 23,203 | 19,257 | 1,128 | 12,154 | 14,732 | 585 |
| 63 Univ. Of Tennessee System | 28,510 | 28,595 | 20,484 | 17,569 | 4,012 | 4,871 | 18,515 | 1,112 |
| 64 U of VT & State Agr Coll | 28,017 | 25,864 | 23,105 | 20,428 | 1,612 | 12,998 | 12,573 | 1,034 |
| 65 U Tex Hlth Sci Ctr Houstn | 27,835 | 28,089 | 26,355 | 23,358 | 0 | 10,843 | 14,692 | 2,300 |
| 66 SUNY at Stony Brook | 27,702 | 25,910 | 28,081 | 19,541 | 0 | 15,840 | 10,974 | 888 |
| 67 Oregon Hlth Sciences Univ | 26,154 | 23,197 | 17,668 | 15,102 | 0 | 8,032 | 16,843 | 1,279 |
| 68 UT MD Anderson Cancer Ctr | 25,982 | 25,870 | 24,161 | 19,852 | 0 | 13,493 | 12,889 | 0 |
| 69 Purdue University | 25,697 | 23,975 | 22,404 | 20,138 | 3,575 | 15,518 | 5,808 | 796 |
| 70 Tulane University | 24,894 | 22,147 | 20,539 | 17,941 | 0 | 2,792 | 9,663 | 12,439 |
| Total, 1st 70 insts. | 4,024,449 | 3,770,166 | 3,401,748 | 3,016,494 | 128,319 | 1,344,092 | 2,377,827 | 174,211 |
| 71 Wayne State University | 23,079 | 21,744 | 17,680 | 12,414 | 0 | 545 | 21,001 | 1,533 |
| 72 Dartmouth College | 22,735 | 20,537 | 19,009 | 15,200 | 0 | 747 | 21,988 | 0 |
| 73 Colorado State University | 22,459 | 20,906 | 19,144 | 17,578 | 7,073 | 15,031 | 355 | 0 |
| 74 Thomas Jefferson Univ | 22,451 | 21,311 | 16,766 | 14,070 | 0 | 9,325 | 10,167 | 2,959 |
| 75 Univ of Ill Urbana | 22,241 | 25,525 | 24,010 | 22,838 | 7,227 | 13,965 | 1,049 | 0 |
| 76 Oregon State University | 21,948 | 21,400 | 21,394 | 22,273 | 8,225 | 7,476 | 761 | 5,486 |
| 77 U Tex Med Brnch Galveston | 21,693 | 23,152 | 19,717 | 16,738 | 0 | 8,773 | 10,636 | 2,284 |
| 78 Medical College of Wis | 21,594 | 21,432 | 19,803 | 15,551 | 0 | 6,996 | 14,598 | 0 |
| 79 University of Kentucky | 21,041 | 19,399 | 20,760 | 20,269 | 7,790 | 766 | 12,404 | 81 |
| 80 Texas A & M University | 20,262 | 22,469 | 24,628 | 17,549 | 5,533 | 12,804 | 1,835 | 90 |
| Total, 1st 80 insts. | 4,243,952 | 3,988,041 | 3,604,659 | 3,190,974 | 164,167 | 1,420,520 | 2,472,621 | 186,644 |
| 81 Temple University | 19,551 | 20,920 | 18,164 | 16,039 | 0 | 13,552 | 5,999 | 0 |
| 82 Univ of Missouri Columbia | 19,340 | 17,948 | 16,116 | 16,394 | 6,578 | 8,205 | 4,557 | 0 |
| 83 N C State Univ at Raleigh | 19,244 | 18,937 | 17,302 | 17,652 | 7,802 | 9,280 | 0 | 2,162 |
| 84 California Inst of Tech | 18,668 | 17,524 | 14,884 | 11,561 | 0 | 18,668 | 0 | 0 |
| 85 Washington State Univ | 18,048 | 15,611 | 13,817 | 14,342 | 7,088 | 10,172 | 552 | 236 |
| 86 Iowa St U of Sci & Tech | 16,825 | 14,476 | 11,419 | 10,347 | 8,509 | 6,407 | 469 | 1,440 |
| 87 Univ of Nebraska-Lincoln | 16,259 | 18,552 | 17,612 | 17,566 | 14,965 | 473 | 821 | 0 |
| 88 George Washington Univ | 15,728 | 14,279 | 10,269 | 11,450 | 0 | 4,014 | 11,127 | 587 |
| 89 University of Kansas | 15,184 | 15,951 | 15,651 | 12,748 | 0 | 10,200 | 4,079 | 905 |
| 90 SUNY Hlth Sci Ctr - Brkln | 14,574 | 11,552 | 10,754 | 10,494 | 0 | 6,850 | 7,724 | 0 |
| Total, 1st 90 insts. | 4,417,373 | 4,153,791 | 3,750,647 | 3,329,567 | 209,109 | 1,508,341 | 2,507,949 | 191,974 |
| 91 Brown University | 14,315 | 12,956 | 12,343 | 11,215 | 0 | 1,901 | 10,749 | 1,665 |
| 92 St Louis University | 13,264 | 11,688 | 7,863 | 6,734 | 0 | 7,489 | 5,768 | 7 |
| 93 VA Polytech Inst & St U | 13,035 | 12,417 | 11,329 | 9,987 | 7,407 | 4,189 | 809 | 630 |
| 94 Rutgers the St Univ of NJ | 12,821 | 11,762 | 9,374 | 9,351 | 2,941 | 6,847 | 2,842 | 191 |
| 95 Univ of P R-Mayaguez | 11,759 | 12,003 | 10,638 | 8,187 | 11,561 | 198 | 0 | 0 |
| 96 The Medical Col of Penna | 11,704 | 11,514 | 9,020 | 7,449 | 0 | 6,982 | 4,722 | 0 |
| 97 Unif Serv Univ of Hlth Sc | 11,288 | 12,706 | 12,613 | 12,076 | 0 | 5,243 | 6,045 | 0 |
| 98 Princeton University | 11,174 | 8,967 | 9,602 | 7,846 | 0 | 11,174 | 0 | 0 |
| 99 Med Univ of So Carolina | 10,910 | 11,547 | 10,956 | 10,797 | 0 | 4,408 | 6,459 | 43 |
| 100 Brandeis University | 10,549 | 10,685 | 10,181 | 9,348 | 0 | 10,549 | 0 | 0 |
| Total, 1st 100 insts. | 4,538,192 | 4,270,036 | 3,854,566 | 3,422,557 | 231,018 | 1,567,321 | 2,545,343 | 194,510 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-59. Federally financed R&D expenditures in the life sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 3 of 3

| Institution ranking | Life sciences total | | | | 1990 subfields | | | |
|---------------------------------------|---------------------|-----------|-----------|-----------|-------------------------------|-----------------------------|---------------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Agri- cultural sciences | Bio- logical sciences | Medical sciences | Other |
| 101 Univ of Cal Riverside | 10,499 | 10,018 | 10,305 | 9,381 | 7,835 | 866 | 1,798 | 0 |
| 102 University of New Mexico | 10,373 | 9,720 | 9,783 | 9,946 | 0 | 5,321 | 3,567 | 1,485 |
| 103 Utah State University | 10,194 | 10,611 | 8,693 | 5,001 | 5,424 | 1,731 | 3,039 | 0 |
| 104 Univ of Texas at Austin | 10,153 | 10,818 | 9,834 | 6,895 | 0 | 7,002 | 2,384 | 767 |
| 105 SUNY Hlth Sci Ctr - Syracuse | 9,965 | 9,520 | 7,497 | 6,427 | 0 | 7,059 | 2,906 | 0 |
| 106 Mississippi State Univ | 9,910 | 8,710 | 7,995 | 7,458 | 9,022 | 725 | 163 | 0 |
| 107 Kans St U - Ag & App Sci | 9,392 | 9,602 | 8,822 | 8,230 | 6,304 | 2,952 | 136 | 0 |
| 108 University of Oklahoma | 9,289 | 8,909 | 8,526 | 7,495 | 0 | 4,049 | 5,238 | 2 |
| 109 U of Neb Med Ctr at Omaha | 9,078 | 8,572 | 7,765 | 7,243 | 0 | 6,583 | 2,495 | 0 |
| 110 New York Medical College | 9,028 | 10,021 | 11,097 | 10,038 | 0 | 6,076 | 2,952 | 0 |
| Total, 1st 110 insts. | 4,636,073 | 4,366,537 | 3,944,883 | 3,500,671 | 259,603 | 1,609,685 | 2,570,021 | 196,764 |
| 111 University of Mississippi | 8,947 | 8,551 | 7,836 | 6,731 | 0 | 4,937 | 4,010 | 0 |
| 112 Univ of Hawaii-Manoa | 8,474 | 8,077 | 8,581 | 7,960 | 1,273 | 3,131 | 819 | 3,251 |
| 113 New Mexico State Univ | 8,463I | 7,066 | 5,228 | 5,778 | 3,588I | 4,607I | 268I | 0I |
| 114 Univ of South Carolina | 8,328 | 7,403 | 6,380 | 5,840 | 0 | 2,431 | 5,471 | 426 |
| 115 West Virginia University | 8,260 | 10,264 | 9,621 | 8,347 | 1,704 | 3,208 | 1,763 | 1,585 |
| 116 Medical Col of Georgia | 8,045 | 7,392 | 7,621 | 7,705 | 0 | 5,688 | 2,281 | 76 |
| 117 Howard University | 7,830I | 7,277I | 6,727I | 6,174 | 0I | 2,293I | 5,537I | 0I |
| 118 Eastern VA Medical School | 7,782 | 6,887 | 5,291 | 2,611 | 0 | 2,266 | 5,516 | 0 |
| 119 Hahnemann University | 7,406 | 7,478 | 6,642 | 6,601 | 0 | 3,830 | 3,570 | 6 |
| 120 University of Idaho | 7,246 | 6,980 | 6,588 | 5,669 | 4,820 | 1,907 | 519 | 0 |
| Total, 1st 120 insts. | 4,716,854 | 4,443,912 | 4,015,198 | 3,564,087 | 270,988 | 1,643,983 | 2,599,775 | 202,108 |
| 121 University of Louisville | 7,006 | 3,756I | 3,429I | 2,849I | 0 | 2,405 | 4,249 | 352 |
| 122 Florida A & M University | 6,891E | 7,692 | 6,265 | 6,338 | 2,976 | 3,915E | 0 | 0 |
| 123 Univ of South Alabama | 6,771 | 6,587 | 5,135 | 4,591 | 0 | 4,993 | 1,670 | 108 |
| 124 Auburn University | 6,760 | 5,875 | 7,455 | 4,255 | 5,929 | 698 | 133 | 0 |
| 125 Oklahoma State University | 6,754 | 7,307 | 7,188 | 4,735 | 3,682 | 2,993 | 62 | 17 |
| 126 Univ of Ark Fayetteville | 6,754 | 5,466 | 5,080 | 5,048 | 6,609 | 138 | 7 | 0 |
| 127 U of Arkansas Med Sci Cam | 6,654 | 5,258 | 5,846 | 4,561 | 0 | 3,300 | 3,354 | 0 |
| 128 Univ of Nevada - Reno | 6,524 | 4,491 | 5,231 | 3,930 | 2,065 | 3,915 | 312 | 232 |
| 129 Meharry Medical College | 6,391 | 6,397 | 5,125 | 4,414 | 0 | 5,192 | 1,199E | 0 |
| 130 Univ of Alaska Fairbanks | 6,324 | 5,435 | 4,779E | 4,591I | 1,921 | 4,403 | 0 | 0 |
| Total, 1st 130 insts. | 4,783,683 | 4,502,176 | 4,070,731 | 3,610,099 | 294,170 | 1,675,935 | 2,610,761 | 202,817 |
| 131 Univ of MD College Park | 6,287 | 6,546 | 5,825 | 6,108 | 1,253 | 3,374 | 0 | 1,660 |
| 132 San Diego State Univ | 6,263 | 5,844 | 5,721 | 4,490 | 1,854 | 2,818 | 1,575 | 16 |
| 133 Univ of South Florida | 6,250 | 5,787 | 4,393 | 3,760 | 0 | 361 | 5,889 | 0 |
| 134 Albany Med Ctr Grad Sch | 6,073 | 7,259 | 7,915 | 8,795 | 0 | 5,297 | 776 | 0 |
| 135 University of Wyoming | 6,001 | 6,321 | 5,387 | 4,310 | 3,149 | 2,744 | 108 | 0 |
| 136 Med Col of Ohio at Toledo | 5,956 | 5,855 | 4,530 | 5,756 | 0 | 4,873 | 1,083 | 0 |
| 137 Clemson University | 5,838 | 5,001 | 6,032 | 3,862 | 3,588 | 1,972 | 100 | 178 |
| 138 Montana State University | 5,816 | 4,834 | 7,249 | 5,568I | 2,677 | 2,889 | 0 | 250 |
| 139 University of Oregon | 5,803 | 4,876 | 4,278 | 3,804 | 0 | 5,581 | 0 | 222 |
| 140 Rush University | 5,392 | 7,159 | 6,157 | 7,522 | 0 | 2,051 | 3,125 | 216 |
| Total, 1st 140 insts. | 4,843,362 | 4,561,658 | 4,128,218 | 3,664,074 | 306,691 | 1,707,895 | 2,623,417 | 205,359 |
| 141 Univ of P R Med Sci Cmpus | 5,366 | 5,235 | 4,218 | 5,389 | 0 | 0 | 5,366 | 0 |
| 142 Southern Ill U-Carbondale | 5,303 | 4,462 | 4,205 | 3,244 | 518 | 2,936 | 1,798 | 51 |
| 143 Morehouse School of Med | 5,149I | 4,238 | 1,815 | 0 | 0I | 5,149I | 0I | 0I |
| 144 Loyola Univ - Chicago | 4,814 | 4,695 | 3,513 | 3,005 | 0 | 3,228 | 1,586 | 0 |
| 145 Carnegie-Mellon Univ | 4,625 | 4,838 | 5,496 | 4,075 | 0 | 4,625 | 0 | 0 |
| 146 Univ of Cal Santa Cruz | 4,308 | 3,907 | 3,710 | 3,477 | 5 | 3,259 | 0 | 1,044 |
| 147 Univ of Maine Orono | 4,305 | 3,984 | 4,109 | 3,343 | 1,556 | 2,623 | 0 | 126 |
| 148 Wright State University | 4,238 | 2,780 | 2,350 | 1,869 | 0 | 745 | 3,492 | 1 |
| 149 University of N Dakota | 4,127 | 4,004 | 3,116 | 3,380 | 0 | 301 | 1,074 | 2,752 |
| 150 North Dakota State Univ | 4,044 | 3,399 | 2,374 | 2,556E | 3,002 | 1,031 | 11 | 0 |
| Total, 1st 150 insts. | 4,889,641 | 4,603,200 | 4,163,124 | 3,694,412 | 311,772 | 1,731,792 | 2,636,744 | 209,333 |
| Total, all other sampled insts. | 165,477 | 163,226 | 154,937 | 135,454 | 35,537 | 89,279 | 30,895 | 9,766 |
| Estimated total non-sampled insts. | 12,828 | 13,485 | 0 | 0 | 824 | 11,694 | 71 | 241 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-60. Total and federally financed R&D expenditures in the agricultural sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|-----------|-----------|-----------|-----------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 1,350,591 | 1,287,075 | 1,177,253 | 1,121,465 | 348,133 | 348,373 | 322,561 | 297,543 |
| 1 Univ of Cal Davis | 92,153 | 86,517 | 72,084 | 72,576 | 15,627 | 16,339 | 13,983 | 15,867 |
| 2 University of Georgia | 54,494 | 51,108 | 49,968 | 44,535 | 8,421 | 8,126 | 8,273 | 7,817 |
| 3 University of Minnesota | 47,070 | 46,514 | 41,493 | 49,867 | 9,423 | 9,594 | 8,155 | 8,627 |
| 4 Univ of Cal Berkeley | 46,886 | 42,221 | 35,351 | 35,159 | 12,763 | 12,085 | 10,889 | 11,151 |
| 5 Univ of Nebraska-Lincoln | 45,945 | 41,360 | 38,586 | 36,188 | 14,965 | 17,131 | 15,860 | 16,302 |
| 6 Michigan State University | 44,216 | 43,703 | 41,763 | 39,936 | 13,580 | 13,437 | 12,642 | 12,027 |
| 7 Cornell University | 42,578 | 42,913 | 39,311 | 36,638 | 8,624 | 9,054 | 8,005 | 8,822 |
| 8 Univ of Cal Riverside | 41,103 | 39,034 | 38,172 | 37,446 | 7,835 | 7,217 | 7,205 | 6,496 |
| 9 Texas A & M University | 38,997 | 36,144 | 34,274 | 31,912 | 5,533 | 7,408 | 7,530 | 5,922 |
| 10 Pennsylvania State Univ | 37,407 | 33,423 | 29,820 | 27,702 | 7,848 | 7,553 | 8,514 | 6,360 |
| Total, 1st 10 insts. | 490,849 | 462,937 | 420,822 | 411,959 | 104,619 | 107,944 | 100,856 | 99,391 |
| 11 N C State Univ at Raleigh | 36,440 | 37,121 | 35,134 | 37,866 | 7,802 | 8,180 | 8,736 | 9,424 |
| 12 Louisiana State Univ | 36,396 | 33,782 | 34,054 | 34,110 | 1,128 | 848 | 913 | 721 |
| 13 VA Polytech Inst & St U | 34,642 | 30,851 | 24,233 | 21,159 | 7,407 | 7,210 | 5,745 | 4,459 |
| 14 Mississippi State Univ | 33,358 | 32,292 | 28,112 | 25,220 | 9,022 | 7,893 | 7,036 | 6,567 |
| 15 Ohio State University | 33,045 | 33,914 | 28,602 | 22,795 | 8,816 | 7,245 | 6,409 | 5,175 |
| 16 Univ of Missouri Columbia | 29,803 | 27,265 | 22,719 | 19,964 | 6,578 | 6,483 | 5,772 | 4,751 |
| 17 Kans St U - Ag & App Sci | 29,423 | 27,695 | 24,862 | 20,695 | 6,504 | 6,238 | 5,391 | 4,049 |
| 18 Auburn University | 29,153 | 32,161 | 32,505 | 28,605 | 5,929 | 5,673 | 7,293 | 4,789 |
| 19 Iowa St U of Sci & Tech | 28,453 | 26,045 | 21,244 | 17,331 | 8,509 | 8,287 | 5,221 | 3,967 |
| 20 Univ of Wis-Madison | 28,087 | 22,312 | 21,431 | 19,253 | 10,407 | 8,646 | 8,514 | 8,212 |
| Total, 1st 20 insts. | 809,649 | 766,375 | 693,718 | 660,957 | 176,521 | 174,647 | 161,886 | 151,505 |
| 21 University of Kentucky | 27,305 | 26,736 | 29,357 | 24,991 | 7,790 | 6,830 | 9,210 | 8,852 |
| 22 Oregon State University | 27,105 | 30,270 | 28,264 | 27,952 | 8,225 | 8,326 | 7,644 | 10,866 |
| 23 Univ of P R-Mayaguez | 26,967 | 26,440 | 23,785 | 22,933 | 11,561 | 11,949 | 10,610 | 7,630 |
| 24 University of Florida | 25,193 | 22,480 | 20,025 | 18,974 | 8,272 | 8,125 | 7,519 | 7,258 |
| 25 Univ of Ill Urbana | 23,903 | 23,176 | 22,036 | 20,706 | 7,227 | 8,019 | 7,389 | 7,096 |
| 26 Clemson University | 23,634 | 20,098 | 17,692 | 16,899 | 3,588 | 3,144 | 3,680 | 2,285 |
| 27 Oklahoma State University | 22,355 | 21,140 | 16,705 | 16,848 | 3,682 | 4,406 | 4,137 | 2,557 |
| 28 Purdue University | 21,867 | 20,899 | 19,257 | 20,647 | 3,575 | 4,125 | 3,995 | 4,053 |
| 29 Washington State Univ | 21,761 | 19,580 | 19,763 | 27,323 | 7,088 | 6,226 | 5,508 | 7,690 |
| 30 Univ. Of Tennessee System | 21,314 | 21,974 | 20,108 | 18,577 | 4,012 | 3,841 | 3,992 | 3,788 |
| Total, 1st 30 insts. | 1,051,053 | 999,168 | 910,710 | 876,807 | 241,541 | 239,638 | 225,570 | 213,580 |
| 31 Univ of Ark Fayetteville | 21,115 | 18,521 | 16,888 | 16,481 | 6,609 | 5,249 | 4,884 | 4,803 |
| 32 Rutgers the St Univ of NJ | 19,184 | 15,832 | 14,785 | 13,910 | 2,941 | 2,618 | 2,622 | 3,191 |
| 33 University of Arizona | 19,048 | 17,520 | 14,180 | 12,710 | 3,731 | 2,944 | 2,408 | 1,891 |
| 34 University of Idaho | 16,497 | 16,366 | 16,690 | 13,882 | 4,820 | 4,906 | 4,998 | 4,545 |
| 35 Colorado State University | 14,584 | 12,539 | 10,897 | 10,060 | 7,073 | 6,802 | 5,933 | 5,373 |
| 36 Utah State University | 12,637 | 12,635 | 10,707 | 9,672 | 5,424 | 5,650 | 4,148 | 3,394 |
| 37 Montana State University | 12,144 | 12,929 | 13,139 | 12,514 | 2,677 | 2,834 | 5,082 | 3,863 |
| 38 New Mexico State Univ | 10,447 | 9,302 | 8,993 | 8,725 | 3,588 | 2,995 | 2,483 | 2,573 |
| 39 University of Washington | 10,309 | 8,197 | 6,721 | 7,259 | 6,716 | 5,743 | 4,628 | 4,149 |
| 40 West Virginia University | 10,225 | 7,256 | 6,848 | 6,505 | 1,704 | 3,573 | 3,594 | 3,517 |
| Total, 1st 40 insts. | 1,197,243 | 1,130,265 | 1,030,558 | 988,525 | 286,824 | 282,952 | 266,350 | 250,879 |
| 41 Univ of Hawaii-Manoa | 8,866 | 8,018 | 7,379 | 7,041 | 1,273 | 1,316 | 998 | 803 |
| 42 Univ of Massachusetts | 8,385 | 11,562 | 11,234 | 9,811 | 1,479 | 3,432 | 3,301 | 2,973 |
| 43 Univ of Maine Orono | 7,763 | 7,063 | 6,201 | 5,949 | 1,556 | 1,452 | 1,416 | 1,334 |
| 44 University of Delaware | 7,472 | 7,123 | 6,439 | 5,773 | 1,444 | 1,423 | 1,347 | 1,374 |
| 45 Univ of Alaska Fairbanks | 7,341 | 7,538 | 6,628 | 6,201 | 1,921 | 2,239 | 1,969 | 2,193 |
| 46 University of Wyoming | 7,082 | 7,206 | 7,184 | 6,581 | 3,149 | 3,225 | 3,270 | 2,511 |
| 47 Texas Tech University | 6,993 | 6,929 | 5,594 | 5,883 | 3,709 | 604 | 536 | 168 |
| 48 South Dakota State Univ | 6,104 | 5,532 | 5,353 | 5,349 | 2,197 | 1,876 | 1,810 | 1,697 |
| 49 North Dakota State Univ | 5,651 | 4,573 | 2,942 | 6,221 | 3,002 | 2,227 | 1,362 | 819 |
| 50 Univ of Nevada - Reno | 5,633 | 5,499 | 4,881 | 2,464 | 2,065 | 1,497 | 1,809 | 1,111 |
| Total, 1st 50 insts. | 1,268,533 | 1,201,308 | 1,094,393 | 1,049,798 | 305,619 | 302,243 | 284,168 | 265,862 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-60. Total and federally financed R&D expenditures in the agricultural sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------------|-----------|-----------|-----------|-----------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 University of Connecticut | 5,171 | 4,829 | 3,817 | 2,789 | 1,479 | 1,447 | 1,148 | 932 |
| 52 U of VT & State Agr Coll | 4,481 | 4,097 | 3,997 | 2,789 | 1,612 | 1,500 | 1,451 | 1,506 |
| 53 Univ of MD College Park | 4,261 | 4,326 | 4,359 | 4,417 | 1,253 | 1,065 | 1,133 | 1,218 |
| 54 Florida A & M University | 3,614E | 3,732 | 2,750 | 2,717 | 2,976 | 3,732 | 2,750 | 2,717 |
| 55 Univ of New Hampshire | 3,385 | 3,044 | 3,082 | 2,983 | 1,246 | 1,259 | 1,475 | 1,292 |
| 56 Alabama A & M University | 3,056 | 2,762 | 3,843 | 1,555 | 2,260 | 1,956 | 3,127 | 1,377 |
| 57 Southern U & A&M College | 2,840 | 1,812 | 1,718 | 1,397 | 2,520 | 1,469 | 1,718 | 1,397 |
| 58 NC Ag & Tech State Univ | 2,780 | 2,348 | 2,794 | 1,803 | 2,583 | 2,299 | 2,791 | 1,638 |
| 59 Prairie View A & M Univ | 2,598 | 2,767 | 630E | 588 | 2,510 | 2,670 | 600 | 558 |
| 60 Lincoln University | 2,486 | 2,500E | NA | NA | 2,315 | 2,424E | NA | NA |
| Total, 1st 60 insts. | 1,303,205 | 1,233,525 | 1,121,383 | 1,071,431 | 326,373 | 322,064 | 300,361 | 278,497 |
| 61 University of Montana | 2,373 | 2,076 | 2,191E | 2,500 | 1,005 | 914 | 965E | 1,000 |
| 62 Kentucky State University | 2,163I | 1,303 | 547 | 247 | 2,163I | 1,303 | 547 | 247 |
| 63 Michigan Tech University | 2,047 | 2,309 | 1,728 | 950 | 628 | 641 | 393 | 208 |
| 64 Southern Ill U-Carbondale | 2,017 | 2,020 | 1,715 | 1,625 | 518 | 112 | 131 | 131 |
| 65 Texas A & I University | 1,989 | 1,923 | 1,872 | 1,749I | 219 | 225 | 320 | 296I |
| 66 Alcorn State University | 1,913 | 1,766 | 950I | 889I | 1,465 | 1,766 | 950I | 889I |
| 67 Virginia State University | 1,886 | 2,093 | 1,882 | 1,702I | 1,372 | 1,579 | 1,882 | 1,702I |
| 68 Tuskegee University | 1,880 | 1,713I | 1,203 | 883 | 1,878 | 1,599I | 1,141 | 837 |
| 69 San Diego State Univ | 1,867 | 1,345 | 1,279 | 946 | 1,854 | 1,341 | 1,277 | 940 |
| 70 Univ of Rhode Island | 1,866 | 5,591I | 5,597 | 2,665 | 0 | 3,747I | 3,922 | 2,230 |
| Total, 1st 70 insts. | 1,323,206 | 1,255,664 | 1,140,347 | 1,085,587 | 337,475 | 335,291 | 311,889 | 286,977 |
| 71 Duke University | 1,740 | 993 | 1,135 | 978 | 431 | 440 | 430 | 505 |
| 72 SUNY Col of Env Sci & For | 1,716 | 1,685 | 2,976 | 2,948 | 99 | 126 | 257 | 208 |
| 73 Tennessee State Univ | 1,520 | 2,665 | 1,622 | 1,474 | 1,520 | 1,608 | 1,596 | 1,472 |
| 74 U of MD Eastern Shore | 1,427 | 2,815 | 1,291 | 1,254 | 1,168 | 2,074 | 1,291 | 1,254 |
| 75 Langston University | 1,200 | 2,349 | NA | NA | 1,200 | 1,961 | NA | NA |
| 76 Univ of Ark Pine Bluff | 1,188 | 1,148 | 1,109 | 1,047 | 1,188 | 1,148 | 1,199 | 1,047 |
| 77 Yale University | 1,063 | 1,234 | 900 | 767 | 212 | 378 | 344 | 224 |
| 78 Northern Arizona Univ | 1,033 | 1,333 | 1,219 | 1,110 | 283 | 342 | 275 | 337 |
| 79 U of the Virgin Islands | 1,011E | 980 | 960 | 2,153E | 995E | 980 | 960 | 1,246E |
| 80 Univ of Cal Santa Cruz | 917 | 792 | 750 | 604 | 5 | 4 | 3 | 3 |
| Total, 1st 80 insts. | 1,336,021 | 1,270,658 | 1,152,429 | 1,097,922 | 344,576 | 344,252 | 318,244 | 293,273 |
| 81 Stephen F Austin St Univ | 834 | 1,015 | 632 | 567 | 289 | 320 | 271 | 218 |
| 82 University of D C | 831 | 760I | 681 | 774 | 399 | 405I | 409 | 338 |
| 83 Delaware State College | 638 | 638 | NA | NA | 531 | 531 | NA | NA |
| 84 Cal Poly St U San Luis Ob | 612 | 745 | 244 | 336I | 70 | 67 | 61 | 48I |
| 85 Brigham Young University | 601 | 678I | 565 | 470 | 202 | 82I | 97 | 0 |
| 86 Southern Univ-New Orleans | 432I | 390E | NA | NA | 382I | 348E | NA | NA |
| 87 Arkansas State University | 381 | 355 | 189 | 192I | 0 | 0 | 0 | 0I |
| 88 Fort Valley State Univ. | 268I | 246E | NA | NA | 249I | 224E | NA | NA |
| 89 Univ of Southwestern LA | 214 | 283 | 265 | 272 | 8 | 60 | 81 | 13 |
| 90 Louisiana Tech University | 186I | 197E | 142 | 193 | 161I | 175E | 126 | 116 |
| Total, 1st 90 insts. | 1,341,018 | 1,275,965 | 1,155,147 | 1,100,726 | 346,867 | 346,464 | 319,289 | 294,006 |
| 91 University of Michigan | 153 | 0 | 0 | 265 | 147 | 0 | 0 | 215 |
| 92 Univ of Wis-Stevens Point | 116 | 297 | 206 | 108I | 67 | 115 | 72 | 31I |
| 93 Arizona State University | 111 | 0 | 0 | 0 | 15 | 0 | 0 | 0 |
| 94 Tougaloo College | 108I | 136E | NA | NA | 88I | 123E | NA | NA |
| 95 Tenn Technological Univ | 81 | 32 | 7 | 44 | 15 | 5 | 2 | 6 |
| 96 South Carolina St College | 56I | 120I | 30 | 12I | 56I | 120I | 30 | 12I |
| 97 East Texas State Univ | 52 | 27 | 11 | 38 | 0 | 0 | 0 | 0 |
| 98 Univ of Wis-River Falls | 48 | 35 | 44 | 46I | 18 | 5 | 2 | 6I |
| 99 Sam Houston State Univ | 40 | 47 | 16 | 7 | 13 | 34 | 6 | 0 |
| 100 West Texas State Univ | 38 | 41I | 36 | 52 | 2 | 17I | 18 | 28 |
| Total, 1st 100 insts. | 1,341,821 | 1,276,700 | 1,155,497 | 1,101,298 | 347,288 | 346,883 | 319,419 | 294,304 |
| Total, all other sampled insts. | 130 | 1,277 | 21,756 | 20,167 | 21 | 457 | 3,142 | 3,239 |
| Estimated total non-sampled insts. | 8,640 | 9,098 | 0 | 0 | 824 | 1,033 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-61. Total and federally financed R&D expenditures in the biological sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|-----------|-----------|-----------|-----------|--------------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 2,844,472 | 2,629,966 | 2,387,569 | 2,132,774 | 1,832,765 | 1,726,766 | 1,594,451 | 1,411,778 |
| 1 Harvard University | 68,950 | 66,372 | 62,859 | 59,156 | 58,242 | 56,338 | 54,706 | 53,048 |
| 2 Baylor Col of Medicine | 68,716 | 57,948 | 37,362 | 31,076 | 44,003 | 28,427 | 26,762 | 22,217 |
| 3 Texas A & M University | 63,850 | 64,365 | 61,696 | 51,577 | 12,804 | 14,150 | 14,008 | 7,594 |
| 4 Rockefeller University | 58,846 | 59,636 | 54,486 | 53,368 | 27,671 | 33,054 | 31,756 | 31,564 |
| 5 Johns Hopkins Univ | 57,474 | 51,837 | 47,844 | 43,639 | 42,590 | 39,742 | 37,732 | 36,007 |
| 6 Washington University | 55,023 | 43,074 | 39,051 | 32,406 | 38,686 | 31,475 | 28,514 | 23,060 |
| 7 Yale University | 54,898 | 52,842 | 50,462 | 45,351 | 48,294 | 46,848 | 43,894 | 38,601 |
| 8 University of Michigan | 54,127 | 49,229 | 48,363 | 42,426 | 38,605 | 35,806 | 34,979 | 30,531 |
| 9 Univ of Wis-Madison | 51,297 | 51,369 | 50,888 | 49,508 | 28,145 | 28,718 | 28,297 | 26,775 |
| 10 University of Washington | 49,401 | 44,665 | 37,230 | 36,944 | 45,022 | 40,033 | 34,706 | 32,957 |
| Total, 1st 10 insts. | 582,582 | 541,337 | 490,261 | 451,451 | 384,062 | 354,636 | 335,354 | 302,354 |
| 11 Columbia Univ Main Div | 47,751 | 37,100 | 35,267 | 30,344 | 41,967 | 33,581 | 31,150 | 26,640 |
| 12 Univ of NC at Chapel Hill | 44,205 | 43,086 | 37,342 | 32,547 | 34,809 | 35,094 | 31,379 | 27,497 |
| 13 University of Georgia | 42,588 | 39,347 | 39,293 | 35,569 | 23,476 | 21,809 | 20,180 | 17,614 |
| 14 Cornell University | 39,731 | 41,361 | 38,797 | 35,742 | 20,642 | 20,244 | 19,639 | 17,008 |
| 15 UT MD Anderson Cancer Ctr | 38,545 | 36,330 | 30,952 | 15,262 | 13,493 | 13,056 | 11,237 | 6,038 |
| 16 Mass Inst of Technology | 37,711 | 34,049 | 34,451 | 32,552 | 32,758 | 29,509 | 28,744 | 26,913 |
| 17 UT SW Medical Ctr-Dallas | 36,474 | 32,266 | 27,775 | 24,305 | 25,586 | 22,577 | 21,218 | 19,400 |
| 18 University of Minnesota | 36,218 | 27,600 | 24,259 | 22,111 | 23,464 | 18,150 | 15,506 | 13,933 |
| 19 SUNY at Buffalo | 34,412 | 31,895 | 34,008 | 31,632 | 29,001 | 30,670 | 29,182 | 26,795 |
| 20 Purdue University | 34,342 | 30,724 | 28,728 | 25,582 | 15,518 | 14,614 | 14,470 | 12,896 |
| Total, 1st 20 insts. | 974,559 | 899,095 | 821,133 | 737,097 | 644,776 | 593,940 | 558,059 | 497,088 |
| 21 Ohio State University | 32,314 | 30,304 | 26,383 | 22,213 | 17,028 | 16,783 | 14,031 | 12,000 |
| 22 N C State Univ at Raleigh | 31,752 | 30,363 | 25,764 | 23,852 | 9,280 | 8,703 | 7,447 | 6,678 |
| 23 Univ of Pennsylvania | 31,681 | 28,347 | 28,837 | 28,644 | 26,756 | 24,841 | 23,419 | 21,047 |
| 24 Univ Alabama Birmingham | 31,192 | 24,851 | 21,972 | 18,399 | 22,248 | 19,295 | 17,531 | 15,365 |
| 25 Pennsylvania State Univ | 30,910 | 29,238 | 23,536 | 21,140 | 17,587 | 17,120 | 14,762 | 14,719 |
| 26 Duke University | 30,788 | 29,050 | 27,809 | 24,382 | 26,856 | 25,353 | 24,136 | 20,981 |
| 27 Tufts University | 30,544 | 31,732 | 34,375E | 28,988E | 25,476 | 27,395 | 29,087E | 25,411E |
| 28 Northwestern University | 29,865 | 27,298 | 24,616 | 20,255 | 20,389 | 19,046 | 18,026 | 14,350 |
| 29 University of Rochester | 29,701 | 29,572 | 27,655 | 24,591 | 26,144 | 26,419 | 24,375 | 21,849 |
| 30 Univ of Cal Davis | 29,489 | 26,719 | 24,768 | 23,651 | 9,913 | 9,536 | 9,271 | 8,793 |
| Total, 1st 30 insts. | 1,282,795 | 1,186,569 | 1,086,848 | 973,212 | 846,253 | 788,431 | 740,144 | 658,281 |
| 31 Rutgers the St Univ of NJ | 29,044 | 27,706 | 24,230 | 23,120 | 6,847 | 6,538 | 5,511 | 5,361 |
| 32 University of Chicago | 28,992 | 28,137 | 26,193 | 23,580 | 25,517 | 24,711 | 23,230 | 20,930 |
| 33 Vanderbilt University | 28,932 | 23,110 | 21,507 | 13,195 | 26,442 | 21,140 | 17,206 | 10,550 |
| 34 University of Cincinnati | 28,927 | 25,483 | 22,304 | 20,307 | 20,148 | 17,675 | 15,322 | 13,561 |
| 35 University of Connecticut | 28,660 | 28,694 | 24,570 | 23,690 | 13,751 | 15,099 | 13,049 | 12,962 |
| 36 New York University | 28,582 | 28,480 | 28,284 | 27,118 | 21,385 | 23,167 | 23,223 | 22,899 |
| 37 Univ of Cal Berkeley | 27,161 | 29,188 | 27,936 | 25,083 | 21,239 | 23,780 | 22,935 | 20,456 |
| 38 Univ. of Colorado | 26,781 | 28,028 | 26,441 | 25,030 | 20,709 | 22,405 | 20,811 | 19,217 |
| 39 Iowa St U of Sci & Tech | 26,160 | 20,627 | 17,525 | 16,325 | 6,407 | 4,730 | 4,677 | 4,997 |
| 40 University of Arizona | 25,258 | 23,099 | 21,264 | 19,428 | 14,602 | 13,187 | 12,997 | 11,962 |
| Total, 1st 40 insts. | 1,561,292 | 1,449,121 | 1,327,102 | 1,190,088 | 1,023,300 | 960,973 | 899,105 | 801,176 |
| 41 California Inst of Tech | 24,857 | 23,012 | 20,964 | 18,398 | 18,668 | 17,524 | 14,884 | 11,561 |
| 42 Louisiana State Univ | 23,704 | 21,399 | 19,492 | 16,165 | 12,154 | 12,263 | 10,814 | 8,411 |
| 43 Temple University | 23,491 | 20,002 | 16,478 | 16,989 | 13,552 | 13,554 | 11,319 | 11,224 |
| 44 Univ of Ill Chicago | 22,588 | 19,958 | 14,977 | 13,719 | 12,798 | 12,482 | 9,197 | 8,539 |
| 45 University of Iowa | 22,498 | 21,356 | 18,289 | 15,123 | 15,575 | 15,522 | 13,120 | 10,781 |
| 46 Case Western Reserve Univ | 21,901E | 18,093 | 18,936 | 18,913 | 18,414 | 15,419 | 15,365 | 14,359 |
| 47 Yeshiva University | 21,831 | 19,366 | 19,596 | 19,160 | 16,917 | 15,138 | 15,294 | 15,527 |
| 48 Washington State Univ | 21,736 | 17,761 | 16,509 | 3,691 | 10,172 | 8,725 | 7,803 | 3,278 |
| 49 Univ of Missouri Columbia | 21,177 | 19,471 | 19,205 | 18,624 | 8,205 | 7,641 | 6,864 | 7,757 |
| 50 Univ of Med & Dent of N J | 21,071 | 13,126 | 11,792 | 10,192 | 10,025 | 9,331 | 8,585 | 7,525 |
| Total, 1st 50 insts. | 1,786,146 | 1,642,665 | 1,503,340 | 1,341,062 | 1,159,780 | 1,088,572 | 1,012,350 | 900,138 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-61. Total and federally financed R&D expenditures in the biological sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|---------------------------------------|-----------|-----------|-----------|-----------|--------------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Colorado State University | 21,002 | 17,414 | 15,751 | 14,810 | 15,031 | 13,486 | 12,785 | 11,807 |
| 52 Univ of Cal Los Angeles | 20,979 | 18,085 | 15,481 | 14,378 | 12,830 | 14,270 | 12,192 | 10,504 |
| 53 SUNY at Stony Brook | 20,585 | 20,744 | 26,532 | 17,230 | 15,840 | 15,685 | 18,321 | 13,637 |
| 54 Michigan State University | 20,567 | 21,130 | 21,317 | 21,479 | 12,764 | 11,034 | 11,586 | 10,667 |
| 55 University of Virginia | 20,553 | 18,327 | 18,339 | 17,160 | 14,893 | 13,455 | 13,948 | 13,338 |
| 56 Univ of Ill Urbana | 20,552 | 18,934 | 19,152 | 17,136 | 13,965 | 13,864 | 14,762 | 13,230 |
| 57 University of Florida | 20,537 | 18,380 | 18,208 | 18,921 | 11,563 | 11,315 | 11,422 | 11,015 |
| 58 Virginia Commonwealth Univ | 20,527 | 17,485 | 15,416 | 15,900 | 14,671 | 12,772 | 12,310 | 12,335 |
| 59 University of Utah | 19,310 | 16,390 | 13,870 | 12,603 | 15,808 | 13,090 | 11,341 | 11,200 |
| 60 University of Kansas | 19,102 | 19,093 | 16,997 | 11,159 | 10,200 | 10,751 | 10,472 | 6,060 |
| Total, 1st 60 insts. | 1,989,860 | 1,828,647 | 1,684,403 | 1,501,838 | 1,297,345 | 1,218,294 | 1,141,489 | 1,013,931 |
| 61 Univ of Massachusetts | 19,039 | 24,226 | 16,644 | 14,444 | 13,780 | 14,597 | 11,705 | 10,157 |
| 62 Princeton University | 17,597 | 15,272 | 15,035 | 12,037 | 11,174 | 8,967 | 9,602 | 7,846 |
| 63 CUNY Mt Sinai Sch of Med | 16,934 | 14,118 | 11,757 | 10,955 | 13,866 | 11,045 | 7,813 | 8,480 |
| 64 U Tex Hlth Sci Ctr S Anto | 16,753 | 16,338 | 15,094 | 13,152 | 12,058 | 12,033 | 11,309 | 9,455 |
| 65 Emory University | 16,628 | 15,747 | 14,533 | 10,875 | 13,486 | 14,076 | 12,756 | 9,574 |
| 66 University of Miami | 16,371 | 16,586 | 14,746 | 13,823 | 13,862 | 12,565 | 10,849 | 8,818 |
| 67 U of VT & State Agr Coll | 16,274 | 15,783 | 13,851 | 11,629 | 12,998 | 12,400 | 11,179 | 9,502 |
| 68 University of New Mexico | 16,060 | 15,621 | 12,440E | 9,907E | 5,321 | 5,368 | 4,708E | 3,563 |
| 69 Indiana University | 15,469 | 13,430 | 12,802 | 11,726 | 10,911 | 9,898 | 9,187 | 8,435 |
| 70 U Tex Hlth Sci Ctr Houstn | 15,412 | 15,357 | 13,713 | 11,235 | 10,843 | 10,904 | 10,468 | 8,818 |
| Total, 1st 70 insts. | 2,156,397 | 1,991,125 | 1,825,018 | 1,621,621 | 1,415,644 | 1,330,147 | 1,241,065 | 1,098,579 |
| 71 Oregon State University | 14,968 | 11,989 | 12,828 | 12,717 | 7,476 | 6,786 | 7,345 | 6,392 |
| 72 Univ of Cal Irvine | 14,805 | 13,197 | 11,834 | 10,048E | 11,587 | 10,054 | 9,277 | 8,025E |
| 73 Brandeis University | 14,303 | 13,244 | 12,154 | 9,024I | 10,549 | 10,685 | 10,181 | 7,396I |
| 74 Univ of Texas at Austin | 14,080 | 13,147 | 12,393 | 10,457 | 7,002 | 7,672 | 7,588 | 5,768 |
| 75 VA Polytech Inst & St U | 13,090 | 11,557 | 12,198 | 11,349 | 4,189 | 3,492 | 4,559 | 4,138 |
| 76 U Tex Med Brnch Galveston | 12,589 | 13,022 | 10,964 | 7,618 | 8,773 | 9,654 | 8,233 | 6,314 |
| 77 Univ of MD Balt Prof Sch | 12,553 | 11,378 | 10,318 | 8,689 | 5,826 | 5,395 | 4,965 | 3,937 |
| 78 Georgetown University | 12,112 | 10,805 | 9,690 | 4,893 | 9,817 | 8,801 | 7,708 | 3,889 |
| 79 U of Neb Med Ctr at Omaha | 11,786 | 12,241 | 10,610 | 9,654 | 6,583 | 6,872 | 6,278 | 6,124 |
| 80 Univ of Cal San Diego | 11,405 | 10,850 | 9,512 | 8,142 | 10,348 | 9,828 | 8,778 | 7,419 |
| Total, 1st 80 insts. | 2,288,088 | 2,112,555 | 1,937,519 | 1,714,212 | 1,497,794 | 1,409,386 | 1,315,947 | 1,157,981 |
| 81 Carnegie-Mellon Univ | 11,400 | 11,008 | 10,741 | 9,997 | 4,625 | 4,838 | 5,496 | 4,075 |
| 82 Medical College of Wis | 11,218 | 12,439 | 11,546 | 9,074 | 6,996 | 7,628 | 9,396 | 6,666 |
| 83 SUNY Hlth Sci Ctr - Brkln | 10,750 | 8,825 | 7,900 | 7,313 | 6,850 | 4,967 | 4,624 | 4,512 |
| 84 Univ of MD College Park | 10,632 | 10,483 | 8,874 | 7,819 | 3,374 | 3,253 | 2,973 | 2,768 |
| 85 SUNY Hlth Sci Ctr - Syrcs | 10,570 | 9,787 | 7,868 | 6,429 | 7,059 | 6,476 | 7,766 | 4,064 |
| 86 Stanford University | 10,565I | 9,841 | 9,593 | 8,917 | 8,120I | 7,707 | 7,377 | 7,219 |
| 87 Oregon Hlth Sciences Univ | 10,519I | 9,042 | 7,016 | 7,083 | 8,032I | 7,124 | 4,634 | 5,193 |
| 88 Thomas Jefferson Univ | 10,164 | 10,250 | 7,231 | 6,186 | 9,325 | 9,554 | 5,131 | 4,447 |
| 89 Univ of Alaska Fairbanks | 10,113 | 7,542 | 6,632E | 5,922I | 4,403 | 3,196 | 2,810E | 2,341I |
| 90 University of Oklahoma | 9,352 | 9,882 | 9,881 | 7,686 | 4,049 | 5,079 | 5,014 | 3,922 |
| Total, 1st 90 insts. | 2,393,371 | 2,211,654 | 2,024,801 | 1,790,638 | 1,560,627 | 1,469,208 | 1,368,168 | 1,203,188 |
| 91 Clemson University | 9,091 | 7,679 | 7,283 | 7,851 | 1,972 | 1,794 | 2,190 | 1,547 |
| 92 Univ. Of Tennessee System | 9,043 | 9,450 | 6,974 | 4,927 | 4,871 | 5,853 | 4,256 | 3,151 |
| 93 The Medical Col of Penna | 8,618 | 11,885 | 9,570 | 7,501 | 6,982 | 7,443 | 6,035 | 4,936 |
| 94 Oklahoma State University | 8,611 | 7,628 | 9,800 | 7,442 | 2,993 | 2,764 | 2,936 | 2,108 |
| 95 St Louis University | 8,342 | 7,517 | 5,025 | 5,022I | 7,489 | 7,224 | 4,708 | 4,546I |
| 96 New Mexico State Univ | 8,179I | 7,131 | 6,574 | 6,543 | 4,607I | 3,847 | 2,720 | 3,205 |
| 97 Med Univ of So Carolina | 8,055 | 9,685 | 9,858 | 9,725 | 4,408 | 5,461 | 5,548 | 6,194 |
| 98 New York Medical College | 7,878 | 7,207 | 10,170 | 9,436 | 6,076 | 5,977E | 8,555 | 8,071 |
| 99 Florida State University | 7,797 | 7,273 | 7,562 | 6,847 | 3,224 | 3,623 | 3,764 | 2,983 |
| 100 Univ of South Alabama | 7,711 | 7,133E | 6,326 | 6,125 | 4,993 | 4,789 | 4,133 | 4,006 |
| Total, 1st 100 insts. | 2,476,696 | 2,294,242 | 2,103,943 | 1,862,057 | 1,608,242 | 1,517,983 | 1,413,013 | 1,243,935 |
| Total, all other sampled insts. | 343,486 | 310,993 | 283,626 | 270,717 | 212,829 | 198,125 | 181,438 | 167,843 |
| Estimated total non-sampled insts. | 24,290 | 24,731 | 0 | 0 | 11,694 | 10,658 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-62. Total and federally financed R&D expenditures in the medical sciences
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|-------------------------------|-----------|-----------|-----------|-----------|--------------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 4,196,183 | 3,843,241 | 3,387,734 | 3,015,867 | 2,667,710 | 2,506,673 | 2,214,392 | 1,963,335 |
| 1 Univ of Cal San Francisco | 238,278 | 212,446 | 193,289 | 169,436 | 175,257 | 159,906 | 137,747 | 117,302 |
| 2 Univ of Cal Los Angeles | 133,412 | 124,481 | 108,769 | 92,067 | 89,654 | 86,738 | 77,885 | 64,575 |
| 3 Stanford University | 126,505 | 118,151 | 106,870 | 93,380 | 101,481 | 96,317 | 87,190 | 78,189 |
| 4 Johns Hopkins Univ | 117,366 | 101,414 | 86,196 | 77,431 | 95,721 | 83,463 | 69,812 | 64,817 |
| 5 Univ of Pennsylvania | 100,918 | 89,399 | 82,970 | 81,011 | 70,201 | 63,136 | 57,724 | 56,726 |
| 6 Univ of Cal San Diego | 99,909 | 88,374 | 80,263 | 73,268 | 80,358 | 72,544 | 67,178 | 60,933 |
| 7 University of Minnesota | 99,238 | 90,446 | 83,118 | 70,258 | 49,199 | 50,682 | 44,829 | 39,736 |
| 8 Univ of Wis-Madison | 95,903 | 89,148 | 81,747 | 74,619 | 53,593 | 50,377 | 46,371 | 42,576 |
| 9 University of Michigan | 93,805 | 80,901 | 67,275 | 56,703 | 58,116 | 52,164 | 46,292 | 36,328 |
| 10 Yale University | 87,132 | 78,702 | 70,787 | 65,423 | 67,682 | 62,127 | 56,524 | 52,060 |
| Total, 1st 10 insts. | 1,192,466 | 1,080,462 | 961,284 | 853,596 | 841,262 | 777,454 | 691,552 | 613,242 |
| 11 Baylor Col of Medicine | 86,406 | 76,733 | 69,452 | 59,103 | 31,790 | 40,909 | 34,063 | 27,617 |
| 12 Univ of Southern Cal | 79,666 | 79,660 | 75,328 | 69,987 | 54,318 | 54,406 | 52,004 | 48,251 |
| 13 Duke University | 77,747 | 72,150 | 61,542 | 45,058 | 56,314 | 52,698 | 47,785 | 34,292 |
| 14 University of Washington | 77,129 | 69,679 | 58,163 | 56,106 | 62,369 | 56,405 | 47,678 | 43,868 |
| 15 Cornell University | 75,576 | 71,381 | 63,148 | 67,009 | 51,396 | 46,499 | 40,226 | 41,493 |
| 16 Washington University | 74,667 | 64,567 | 58,905 | 54,014 | 52,455 | 49,827 | 45,652 | 41,552 |
| 17 Univ Alabama Birmingham | 71,806 | 69,179 | 57,677 | 49,177 | 49,556 | 47,029 | 42,607 | 37,012 |
| 18 University of Pittsburgh | 67,811 | 63,720 | 55,823 | 43,613 | 55,861 | 50,766 | 43,763 | 35,460 |
| 19 Harvard University | 67,571 | 61,399 | 53,628 | 44,743 | 44,351 | 36,502 | 32,270 | 26,660 |
| 20 Univ of MD Balt Prof Sch | 66,951 | 60,683 | 55,030 | 46,346 | 31,073 | 28,776 | 26,482 | 20,995 |
| Total, 1st 20 insts. | 1,937,796 | 1,769,613 | 1,570,180 | 1,388,752 | 1,330,745 | 1,241,271 | 1,102,082 | 970,442 |
| 21 Columbia Univ Main Div | 65,322 | 62,963 | 57,214 | 56,194 | 55,816 | 53,182 | 49,071 | 50,139 |
| 22 University of Iowa | 58,626 | 55,552 | 49,106 | 40,605 | 42,321 | 41,372 | 36,050 | 31,771 |
| 23 Univ of Cal Davis | 55,833 | 49,241 | 41,314 | 32,536 | 38,496 | 34,522 | 28,464 | 21,703 |
| 24 University of Rochester | 51,965 | 46,758 | 43,594 | 36,532 | 40,893 | 36,567 | 33,851 | 27,114 |
| 25 University of Miami | 51,930 | 51,234 | 37,333 | 33,338 | 33,770 | 32,082 | 24,011 | 17,302 |
| 26 Boston University | 50,688 | 47,108 | 44,698 | 44,686 | 42,592 | 41,372 | 39,457 | 39,010 |
| 27 University of Chicago | 49,984 | 45,718 | 40,535 | 36,723 | 38,733 | 35,651 | 31,300 | 28,754 |
| 28 UT SW Medical Ctr-Dallas | 49,445 | 47,654 | 42,617 | 38,602 | 29,379 | 28,677 | 27,139 | 25,982 |
| 29 CUNY Mt Sinai Sch of Med | 46,818 | 42,738 | 37,970 | 35,182 | 29,741 | 26,188 | 25,039 | 22,344 |
| 30 Univ. of Colorado | 45,307 | 41,215 | 35,188 | 30,766 | 31,875 | 28,778 | 22,832 | 19,019 |
| Total, 1st 30 insts. | 2,463,714 | 2,259,794 | 2,000,049 | 1,773,916 | 1,714,361 | 1,599,662 | 1,419,296 | 1,253,780 |
| 31 UT MD Anderson Cancer Ctr | 45,258 | 42,767 | 38,708 | 35,947 | 12,489 | 12,814 | 12,924 | 12,886 |
| 32 Emory University | 44,627 | 41,253 | 29,123 | 33,025 | 21,868 | 18,264 | 17,119 | 15,101 |
| 33 Yeshiva University | 43,664 | 38,733 | 39,193 | 38,320 | 33,835 | 30,277 | 30,588 | 31,055 |
| 34 Univ of Med & Dent of N J | 43,158 | 41,325 | 30,235 | 22,030 | 25,160 | 18,652 | 13,264 | 9,464 |
| 35 Univ of NC at Chapel Hill | 41,524 | 40,375 | 34,835 | 30,562 | 34,031 | 33,102 | 28,344 | 25,163 |
| 36 New York University | 41,404 | 35,382 | 33,471 | 38,691 | 29,109 | 26,760 | 24,444 | 26,770 |
| 37 Wayne State University | 39,574 | 37,980 | 31,145 | 22,611 | 21,001 | 20,658 | 16,935 | 11,584 |
| 38 Univ of South Florida | 39,271 | 29,762 | 31,037 | 30,092 | 5,889 | 5,218 | 3,871 | 3,350 |
| 39 Case Western Reserve Univ | 38,510E | 36,432 | 28,863 | 26,201 | 32,476 | 31,805 | 24,523 | 21,742 |
| 40 Univ of Cal Irvine | 38,456 | 31,244 | 27,530 | 23,378E | 22,595 | 19,532 | 17,341 | 15,002E |
| Total, 1st 40 insts. | 2,879,060 | 2,625,047 | 2,324,189 | 2,074,773 | 1,950,814 | 1,816,744 | 1,608,649 | 1,425,897 |
| 41 Indiana University | 38,275 | 33,343 | 28,042 | 24,883 | 21,641 | 22,313 | 17,773 | 13,367 |
| 42 Wake Forest University | 38,015 | 35,694 | 29,375 | 22,472 | 29,289 | 27,807 | 22,290 | 18,106 |
| 43 University of Connecticut | 37,888 | 35,250 | 27,432 | 27,437 | 17,144 | 18,197 | 16,122 | 15,396 |
| 44 Univ. Of Tennessee System | 37,266 | 37,990 | 29,200 | 30,970 | 18,515 | 17,992 | 11,621 | 9,902 |
| 45 Virginia Commonwealth Univ | 37,074 | 31,402 | 24,765 | 24,288 | 24,250 | 20,539 | 17,213 | 17,670 |
| 46 University of Utah | 35,543 | 32,867 | 31,916 | 30,223 | 26,668 | 26,660 | 25,426 | 25,440 |
| 47 Northwestern University | 35,483 | 32,282 | 30,005 | 29,052 | 13,168 | 12,397 | 12,885 | 13,472 |
| 48 University of Arizona | 35,308 | 33,174 | 31,133 | 26,985 | 19,747 | 20,216 | 17,623 | 15,575 |
| 49 Univ of Ill Chicago | 34,917 | 35,316 | 32,492 | 25,511 | 18,063 | 19,222 | 18,056 | 13,970 |
| 50 Dartmouth College | 32,318E | 27,702 | 24,232 | 21,170 | 21,988 | 19,862 | 18,417 | 14,539 |
| Total, 1st 50 insts. | 3,241,147 | 2,960,067 | 2,612,781 | 2,337,764 | 2,161,287 | 2,021,949 | 1,786,075 | 1,583,334 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-62. Total and federally financed R&D expenditures in the medical sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------------|-----------|-----------|-----------|-----------|--------------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 University of Florida | 31,824 | 29,211 | 24,312 | 22,619 | 15,185 | 14,549 | 13,903 | 11,242 |
| 52 Univ Serv Univ of Hlth Sc | 30,837 | 21,855 | 10,357 | 6,778 | 6,045 | 7,499 | 6,979 | 6,778 |
| 53 University of Virginia | 30,327 | 24,044 | 22,258 | 17,334 | 15,724 | 13,298 | 12,206 | 10,148 |
| 54 Georgetown University | 29,008 | 32,467 | 26,138 | 23,118 | 19,520 | 20,841 | 16,660 | 15,106 |
| 55 U Tex Hlth Sci Ctr S Anto | 28,910 | 26,163 | 24,579 | 21,324 | 17,373 | 17,291 | 16,219 | 13,014 |
| 56 Oregon Hlth Sciences Univ | 27,937 | 23,493 | 20,728 | 17,447 | 16,843 | 14,938 | 12,062 | 8,978 |
| 57 Vanderbilt University | 27,906 | 25,415 | 22,880 | 14,385 | 25,835 | 22,946 | 17,195 | 10,295 |
| 58 SUNY at Buffalo | 27,757 | 28,506 | 22,871 | 21,503 | 16,631 | 19,227 | 15,792 | 14,225 |
| 59 U Tex Hlth Sci Ctr Houstn | 25,535 | 25,826 | 24,574 | 20,110 | 14,692 | 15,066 | 14,581 | 13,048 |
| 60 SUNY Hlth Sci Ctr - Syrcs | 24,623 | 21,338 | 16,673 | 14,757 | 2,906 | 3,044 | 2,731 | 2,363 |
| Total, 1st 60 insts. | 3,525,811 | 3,218,385 | 2,828,151 | 2,517,139 | 2,311,841 | 2,170,648 | 1,914,403 | 1,688,531 |
| 61 Ohio State University | 24,543 | 22,631 | 20,377 | 16,340 | 14,620 | 13,439 | 9,866 | 7,650 |
| 62 Medical College of Wis | 23,404 | 22,512 | 21,685 | 21,144 | 14,598 | 13,804 | 10,407 | 8,885 |
| 63 University of Cincinnati | 22,568 | 23,029 | 19,831 | 16,595 | 12,672 | 12,875 | 11,745 | 9,759 |
| 64 Louisiana State Univ | 22,365 | 16,139 | 16,318 | 13,578 | 14,732 | 10,836 | 11,476 | 10,125 |
| 65 University of Kentucky | 21,254 | 18,590 | 19,476 | 15,402 | 12,404 | 11,458 | 10,770 | 10,739 |
| 66 Univ of Massachusetts | 21,047 | 28,120 | 20,454 | 17,456 | 11,652 | 11,859 | 10,037 | 8,428 |
| 67 Tulane University | 20,413 | 16,991 | 15,202 | 13,154 | 9,663 | 7,531 | 6,922 | 5,499 |
| 68 U of VT & State Agr Coll | 18,113 | 15,848 | 13,648 | 11,899 | 12,373 | 11,015 | 9,716 | 8,854 |
| 69 U Tex Med Brnch Galveston | 17,868 | 18,305 | 15,600 | 10,986 | 10,636 | 11,241 | 9,513 | 8,412 |
| 70 SUNY at Stony Brook | 17,233 | 16,364 | 13,582 | 8,517 | 10,974 | 10,223 | 9,760 | 5,895 |
| Total, 1st 70 insts. | 3,734,619 | 3,416,914 | 3,004,324 | 2,662,210 | 2,436,165 | 2,284,929 | 2,014,615 | 1,772,777 |
| 71 Thomas Jefferson Univ | 17,147 | 17,961 | 15,191 | 12,177 | 10,167 | 10,579 | 10,456 | 8,350 |
| 72 University of Oklahoma | 16,173 | 13,488 | 11,801 | 10,492 | 5,238 | 3,830 | 3,508 | 3,570 |
| 73 Rush University | 15,393 | 16,233 | 13,822 | 11,056 | 3,125 | 2,158 | 2,243 | 4,672 |
| 74 Med Univ of So Carolina | 14,884 | 13,123 | 11,038 | 9,754 | 6,459 | 3,990 | 5,407 | 4,603 |
| 75 University of Georgia | 14,660 | 13,212 | 11,116 | 9,536 | 2,534 | 2,588 | 2,124 | 1,433 |
| 76 Univ of Cal Berkeley | 13,809 | 12,459 | 9,157 | 10,215 | 7,855 | 7,653 | 7,055 | 8,038 |
| 77 Pennsylvania State Univ | 13,799 | 11,335 | 10,300 | 8,930 | 9,790 | 8,098 | 7,333 | 6,560 |
| 78 George Washington Univ | 13,673 | 13,628 | 12,242 | 9,727 | 11,127 | 11,237 | 10,179E | 7,875 |
| 79 Brown University | 13,618 | 12,798 | 11,012 | 9,638 | 10,749 | 9,966 | 9,456 | 8,089 |
| 80 Temple University | 13,618 | 14,054 | 13,560 | 10,556 | 5,999 | 7,366 | 6,845 | 4,815 |
| Total, 1st 80 insts. | 3,881,393 | 3,555,205 | 3,123,563 | 2,764,291 | 2,509,208 | 2,356,394 | 2,080,221 | 1,830,782 |
| 81 Univ of Missouri Columbia | 12,918 | 10,818 | 10,499 | 10,561 | 4,557 | 3,824 | 3,480 | 3,886 |
| 82 SUNY Hlth Sci Ctr - Brkln | 12,123 | 11,698 | 10,474 | 9,695E | 7,724 | 6,585 | 6,130 | 5,982 |
| 83 University of Kansas | 10,865 | 7,596 | 8,140 | 12,922 | 4,079 | 3,631 | 3,446 | 5,380 |
| 84 The Medical Col of Penna | 10,025 | 8,657 | 5,707 | 3,580 | 4,722 | 4,071 | 2,985 | 2,513 |
| 85 Univ of South Carolina | 9,934 | 8,948 | 7,236 | 5,920 | 5,471 | 4,957 | 4,191 | 3,420 |
| 86 Purdue University | 9,354 | 7,894 | 5,924 | 4,973 | 5,808 | 4,825 | 3,586 | 2,895 |
| 87 Creighton University | 8,929 | 7,934 | 7,647 | 5,898I | 2,405 | 2,386 | 1,828 | 1,514I |
| 88 U of Arkansas Med Sci Cam | 8,219E | 7,484 | 6,766 | 3,699 | 3,354 | 2,580 | 3,257 | 2,691 |
| 89 University of Mississippi | 8,102 | 7,943 | 7,819 | 6,862 | 4,010 | 3,972 | 3,844 | 3,562 |
| 90 St Louis University | 7,712 | 5,981 | 3,975 | 2,946I | 5,768 | 4,302 | 2,939 | 2,100I |
| Total, 1st 90 insts. | 3,979,574 | 3,640,158 | 3,197,750 | 2,833,347 | 2,557,106 | 2,397,527 | 2,115,907 | 1,864,725 |
| 91 Rutgers the St Univ of NJ | 7,708 | 6,238 | 4,134 | 1,619 | 2,842 | 2,399 | 1,197 | 694 |
| 92 Michigan State University | 7,602 | 7,933 | 7,301 | 9,182 | 3,399 | 3,01E | 2,429 | 2,589 |
| 93 Hahnemann University | 7,548 | 6,171 | 4,197 | 5,464 | 3,370 | 3,603 | 3,158 | 3,589 |
| 94 Eastern VA Medical School | 7,545 | 5,298 | 4,551 | 2,842 | 5,516 | 4,726 | 3,874 | 1,640 |
| 95 Howard University | 7,188I | 7,049I | 6,915I | 6,774E | 5,537I | 5,146I | 4,757I | 4,366 |
| 96 University of New Mexico | 7,045 | 5,789 | 6,102 | 9,607 | 3,567 | 3,107 | 3,281 | 6,365 |
| 97 University of Louisville | 6,339 | 4,843I | 6,344I | 6,039I | 4,249 | 3,160I | 2,885I | 2,397I |
| 98 Univ of P R-Med Sci Campus | 6,293 | 6,528 | 5,517 | 6,893 | 5,366 | 5,235 | 4,218 | 5,389 |
| 99 Iowa St U of Sci & Tech | 6,182 | 5,353 | 4,681 | 3,907 | 4,669 | 521 | 4,411 | 345 |
| 100 U of Neb Med Ctr at Omaha | 6,058 | 5,050 | 4,074 | 2,838 | 2,495 | 1,700 | 1,487 | 1,119 |
| Total, 1st 100 insts. | 4,049,082 | 3,700,410 | 3,251,566 | 2,888,512 | 2,594,116 | 2,430,142 | 2,143,604 | 1,893,218 |
| Total, all other sampled insts. | 146,623 | 140,827 | 136,168 | 127,355 | 73,523 | 74,737 | 70,788 | 70,117 |
| Estimated total non-sampled insts. | 478 | 2,004 | 0 | 0 | 71 | 1,794 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-63. Total and federally financed R&D expenditures in psychology
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 259,555 | 238,033 | 214,063 | 187,957 | 169,380 | 156,559 | 140,951 | 124,286 |
| 1 Univ of Wis-Madison | 8,553 | 8,843 | 7,653 | 7,492 | 6,876 | 7,336 | 6,419 | 6,136 |
| 2 Mass Inst of Technology | 7,856 | 7,573 | 8,609 | 8,425 | 7,231 | 6,309 | 7,353 | 7,397 |
| 3 Univ of Southern Cal | 7,527 | 5,098 | 3,984 | 3,537 | 5,227 | 3,659 | 2,748 | 2,484 |
| 4 Univ of Cal Los Angeles | 6,681 | 6,694 | 8,403 | 7,936 | 4,782 | 5,369 | 7,035 | 6,618 |
| 5 Univ of Cal Berkeley | 6,414 | 5,933 | 5,607 | 5,270 | 3,685 | 3,317 | 3,121 | 2,667 |
| 6 Rutgers the St Univ of NJ | 6,198 | 5,202 | 4,708 | 3,850 | 2,593 | 2,285 | 2,244 | 1,675 |
| 7 University of Minnesota | 6,042 | 6,283 | 5,222 | 4,690 | 2,962 | 3,953 | 3,754 | 3,182 |
| 8 Univ of Ill Urbana | 5,532 | 5,420 | 5,091 | 4,997 | 3,447 | 3,381 | 3,078 | 2,978 |
| 9 University of Michigan | 5,388 | 5,601 | 6,818 | 6,147 | 3,996 | 2,948 | 3,814 | 2,843 |
| 10 Univ. of Colorado | 5,178 | 4,958 | 3,767 | 4,346 | 3,549 | 3,438 | 2,455 | 2,954 |
| Total, 1st 10 insts. | 65,369 | 61,605 | 59,862 | 56,690 | 44,348 | 41,995 | 42,021 | 38,934 |
| 11 University of Washington | 5,097 | 4,553 | 3,324 | 3,023 | 4,664 | 4,218 | 3,088 | 2,588 |
| 12 Princeton University | 5,015 | 4,528 | 4,408 | 3,206 | 2,387 | 2,377 | 2,176 | 2,088 |
| 13 Univ of MD Collo. Park | 4,994 | 4,773 | 4,148 | 3,512 | 1,194 | 1,380 | 1,170 | 868 |
| 14 University of Rochester | 4,731 | 4,767 | 5,062 | 3,711 | 2,319 | 2,688 | 3,133 | 2,441 |
| 15 Pennsylvania State Univ | 4,565 | 2,756 | 2,545 | 2,151 | 2,040 | 1,062 | 1,137 | 1,019 |
| 16 Carnegie-Mellon Univ | 4,458 | 4,007 | 4,443 | 3,992 | 3,403 | 3,324 | 3,911 | 3,229 |
| 17 Stanford University | 4,397 | 4,081 | 3,834 | 3,583 | 3,186 | 3,024 | 2,931 | 2,950 |
| 18 University of Georgia | 3,656 | 3,668 | 2,857 | 2,504 | 1,137 | 1,419 | 910 | 684 |
| 19 New York University | 3,605 | 3,703 | 3,205 | 3,311 | 3,316 | 3,591 | 3,014 | 2,975 |
| 20 Univ of Massachusetts | 3,406 | 3,008 | 2,704 | 2,690 | 2,463 | 2,336 | 2,080 | 2,105 |
| Total, 1st 20 insts. | 109,293 | 101,449 | 96,392 | 88,373 | 70,457 | 67,414 | 65,571 | 59,881 |
| 21 Yale University | 3,181 | 2,952 | 2,354 | 2,837 | 1,686 | 1,292 | 1,173 | 1,256 |
| 22 Florida State University | 3,166 | 3,000 | 2,608 | 2,403 | 1,449 | 1,328 | 1,125 | 1,017 |
| 23 Memphis State University | 3,139 | 3,029 | 2,505 | 1,649 | 974 | 1,064 | 573 | 402 |
| 24 Indiana University | 3,089 | 2,795 | 2,658 | 2,365 | 2,174 | 2,281 | 2,192 | 1,934 |
| 25 Michigan State University | 2,930 | 1,739 | 2,063 | 1,843 | 1,748 | 865 | 813 | 546 |
| 26 University of Connecticut | 2,912 | 3,017 | 2,419 | 2,317 | 1,830 | 1,042 | 830 | 900 |
| 27 Cornell University | 2,909 | 2,875 | 2,704 | 2,335 | 1,106 | 1,234 | 1,193 | 877 |
| 28 SUNY at Albany | 2,797 | 2,894 | 2,696 | 1,937 | 2,321 | 2,471 | 2,121 | 1,640 |
| 29 SUNY at Buffalo | 2,794 | 2,314 | 2,066 | 1,340 | 912 | 864 | 816 | 727 |
| 30 Univ of Cal Santa Barbara | 2,789 | 2,936 | 2,719 | 2,837 | 2,075 | 2,180 | 2,002 | 2,201 |
| Total, 1st 30 insts. | 138,999 | 129,000 | 121,184 | 110,236 | 85,732 | 82,035 | 78,409 | 71,381 |
| 31 Univ of Cal San Diego | 2,617 | 2,410 | 2,104 | 1,709 | 1,822 | 1,619 | 1,368 | 1,247 |
| 32 University of Dayton | 2,453 | 3,075 | 1,645 | 53 | 2,446 | 2,562 | 1,364 | 45 |
| 33 University of Virginia | 2,406 | 1,866 | 1,704 | 1,240 | 2,064 | 1,535 | 1,353 | 897 |
| 34 Univ of South Carolina | 2,261 | 2,119 | 1,320 | 1,252 | 1,123 | 994 | 870 | 968 |
| 35 Univ of Texas at Austin | 2,259 | 2,204 | 1,864 | 1,537 | 1,678 | 1,690 | 1,495 | 1,199 |
| 36 SUNY at Binghamton | 2,186 | 1,714 | 1,389 | 1,219 | 782 | 663 | 446 | 322 |
| 37 Arizona State University | 2,138 | 1,727 | 1,253 | 1,080 | 1,552 | 1,244 | 908 | 773 |
| 38 University of Florida | 2,114 | 2,674 | 1,838 | 1,995 | 995 | 1,373 | 1,199 | 1,206 |
| 39 Harvard University | 2,064 | 2,123 | 1,689 | 1,677 | 1,299 | 1,437 | 1,325 | 1,188 |
| 40 San Jose State University | 1,910 | 883 | 1,250 | 635 | 1,813 | 871 | 1,250 | 635 |
| Total, 1st 40 insts. | 161,407 | 149,795 | 137,240 | 122,633 | 101,306 | 96,023 | 89,987 | 79,861 |
| 41 Vanderbilt University | 1,744 | 1,507 | 1,521 | 1,602 | 1,433 | 1,040 | 1,128 | 1,188 |
| 42 Georgia Institute of Tech | 1,696 | 2,891 | 2,825 | 1,415 | 956 | 1,623 | 1,686 | 742 |
| 43 Georgia State University | 1,626 | 1,005 | 914 | 870 | 517 | 354 | 284 | 319 |
| 44 Colorado State University | 1,607 | 1,243 | 824 | 411 | 1,556 | 1,114 | 742 | 393 |
| 45 U of Houston | 1,584 | 1,347 | 954 | 580 | 907 | 692 | 356 | 280 |
| 46 University of Pittsburgh | 1,583 | 1,151 | 626 | 593 | 1,456 | 1,017 | 566 | 490 |
| 47 Duke University | 1,558 | 1,326 | 1,330 | 1,228 | 1,471 | 1,245 | 1,124 | 1,068 |
| 48 University of Oregon | 1,552 | 1,405 | 1,101 | 1,083 | 1,274 | 1,153 | 942 | 868 |
| 49 Brown University | 1,550 | 1,136 | 1,232 | 1,133 | 1,301 | 994 | 1,153 | 1,072 |
| 50 Univ of Pennsylvania | 1,546 | 1,570 | 1,306 | 1,213 | 1,357 | 1,570 | 1,306 | 1,137 |
| Total, 1st 50 insts. | 177,453 | 164,376 | 149,873 | 132,761 | 113,534 | 106,825 | 99,274 | 87,418 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-63. Total and federally financed R&D expenditures in psychology
at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|---------------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Purdue University | 1,521 | 1,727 | 1,809 | 1,322 | 1,183 | 1,252 | 1,351 | 944 |
| 52 Hahnemann University | 1,461 | 730 | 329 | 306 | 838 | 331 | 176 | 191 |
| 53 University of Kansas | 1,426 | 1,086 | 999 | 814 | 764 | 671 | 645 | 540 |
| 54 University of Miami | 1,419 | 1,245 | 1,159 | 1,008 | 1,269 | 1,160 | 965 | 823 |
| 55 Cal Sch Prof Psych-Fresno | 1,382 | 1,922 | 1,015 | 535 | 985 | 1,566 | 940 | 476 |
| 56 Johns Hopkins Univ | 1,368 | 1,193 | 1,575 | 1,492 | 1,162 | 1,035 | 1,246 | 1,236 |
| 57 Univ of South Florida | 1,358 | 1,438 | 1,173 | 593 | 655 | 892 | 810 | 405 |
| 58 Oregon Hlth Sciences Univ | 1,350 | 1,168 | 655 | 411 | 1,087 | 965 | 572 | 277 |
| 59 San Diego State Univ | 1,349 | 813 | 783 | 672 | 1,087 | 382 | 271 | 327 |
| 60 Cal Sch Prof Psych-L A | 1,316 | 1,551 | 616 | 500 | 1,163 | 1,383 | 322 | 164 |
| Total, 1st 60 insts. | 191,403 | 177,249 | 159,986 | 140,414 | 123,727 | 116,462 | 106,572 | 92,801 |
| 61 Univ. Of Tennessee System | 1,310 | 660 | 575 | 675 | 338 | 363 | 328 | 484 |
| 62 Columbia Univ Main Div | 1,261 | 1,338 | 1,086 | 859 | 1,149 | 1,204 | 965 | 759 |
| 63 U of VT & State Agr Coll | 1,246 | 1,381 | 674 | 625 | 1,002 | 1,048 | 412 | 420 |
| 64 Temple University | 1,242 | 912 | 210 | 203 | 565 | 439 | 56 | 55 |
| 65 Brandeis University | 1,224 | 1,283 | 1,309 | 1,052 | 1,086 | 1,090 | 1,262 | 908 |
| 66 VA Polytech Inst & St U | 1,209 | 705 | 964 | 456 | 664 | 366 | 224 | 169 |
| 67 SUNY at Stony Brook | 1,050 | 1,001 | 992 | 937 | 849 | 511 | 685 | 881 |
| 68 University of Denver | 1,043 | 1,077 | 1,310 | 1,598 | 750 | 896 | 1,152 | 1,296 |
| 69 Washington University | 1,036 | 754 | 672 | 534 | 704 | 543 | 486 | 276 |
| 70 Univ of NC at Chapel Hill | 1,013 | 808 | 648 | 490 | 939 | 722 | 566 | 429 |
| Total, 1st 70 insts. | 203,037 | 187,168 | 168,426 | 147,843 | 131,773 | 123,644 | 112,708 | 98,478 |
| 71 University of Iowa | 1,009 | 1,269 | 1,634 | 1,435 | 542 | 583 | 761 | 926 |
| 72 University of Chicago | 1,008 | 967 | 1,085 | 1,068 | 704 | 713 | 771 | 735 |
| 73 Northwestern University | 981 | 792 | 994 | 1,158 | 767 | 708 | 869 | 978 |
| 74 Loyola Univ - Chicago | 944 | 839 | 1,083 | 926 | 600 | 585 | 579 | 495 |
| 75 Univ of Rhode Island | 943 | 626 | 636 | 652 | 806 | 482 | 505 | 522 |
| 76 Univ of Missouri Columbia | 927 | 1,461 | 1,188 | 915 | 492 | 507 | 487 | 332 |
| 77 Rush University | 921 | 528 | 534 | 438 | 691 | 423 | 396 | 301 |
| 78 Seton Hall University | 874 | 829 | 761 | 689 | 874 | 829 | 761 | 689 |
| 79 Texas Christian Univ | 854 | 194 | 90 | 111 | 831 | 177 | 78 | 103 |
| 80 Tufts University | 854 | 774 | 1,978 | 2,016 | 749 | 620 | 1,254 | 1,419 |
| Total, 1st 80 insts. | 212,352 | 195,447 | 178,409 | 157,251 | 138,829 | 129,271 | 119,169 | 104,978 |
| 81 CUNY Hunter College | 845 | 997 | 771 | 716 | 744 | 780 | 539 | 521 |
| 82 The University of Alabama | 831 | 651 | 723 | 739 | 279 | 288 | 366 | 413 |
| 83 Louisiana State Univ | 795 | 1,141 | 1,172 | 708 | 390 | 238 | 336 | 190 |
| 84 CUNY Grad Sch & Univ Ctr | 774 | 1,238 | 606 | 288 | 319 | 730 | 366 | 71 |
| 85 Wayne State University | 716 | 915 | 789 | 840 | 465 | 624 | 583 | 564 |
| 86 Texas A & M University | 686 | 860 | 807 | 439 | 310 | 535 | 628 | 305 |
| 87 Northern Arizona Univ | 650 | 458 | 469 | 495 | 612 | 448 | 469 | 445 |
| 88 University of Arizona | 626 | 301 | 383 | 168 | 469 | 180 | 247 | 58 |
| 89 Virginia Commonwealth Univ | 626 | 345 | 257 | 93 | 489 | 252 | 147 | 25 |
| 90 Northeastern University | 618 | 618 | 773 | 558 | 460 | 525 | 657 | 517 |
| Total, 1st 90 insts. | 219,519 | 202,971 | 185,159 | 162,295 | 143,366 | 133,871 | 123,507 | 108,087 |
| 91 University of Utah | 614 | 687 | 629 | 347 | 488 | 424 | 450 | 228 |
| 92 De Paul University | 612 | 533 | 403 | 173 | 433 | 473 | 400 | 161 |
| 93 University of Delaware | 592 | 921 | 927 | 900 | 385 | 778 | 730 | 752 |
| 94 Catholic Univ of America | 586 | 667 | 529 | 194 | 586 | 638 | 490 | 153 |
| 95 Univ Alabama Birmingham | 574 | 638 | 699 | 560 | 378 | 502 | 643 | 542 |
| 96 Florida Atlantic Univ | 565 | 493 | 424 | 233 | 528 | 393 | 289 | 27 |
| 97 Coppin State College | 562 | 534 | NA | NA | 233 | 245 | NA | NA |
| 98 Columbia U Teachers Col | 556 | 382 | 396 | 224 | 142 | 211 | 186 | 179 |
| 99 University of New Mexico | 552 | 782 | 631 | 482 | 418 | 678 | 531 | 395 |
| 100 Iowa St U of Sci & Tech | 541 | 617 | 883 | 1,119 | 10 | 124 | 337 | 471 |
| Total, 1st 100 insts. | 225,273 | 209,225 | 190,680 | 166,527 | 146,967 | 138,337 | 127,563 | 110,995 |
| Total, all other sampled insts. | 24,988 | 22,143 | 23,383 | 21,430 | 14,882 | 13,003 | 13,388 | 13,291 |
| Estimated total non-sampled insts. | 9,294 | 6,665 | 0 | 0 | 7,531 | 5,219 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

169

BEST COPY AVAILABLE

- 163 -

Table B-64. R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Social sciences total | | | | 1990 subfields | | | |
|------------------------------|-----------------------|---------|---------|---------|----------------|----------------------|----------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Eco- nomics | Political science | Soci- ology | Other |
| Total, all institutions | 702,175 | 636,613 | 553,156 | 502,172 | 203,191 | 111,545 | 134,010 | 253,429 |
| 1 Harvard University | 39,668 | 40,675 | 36,429 | 30,860 | 20,028 | 14,986 | 474 | 4,180 |
| 2 University of Michigan | 39,203 | 36,860 | 31,552 | 31,592 | 11,358 | 5,741 | 8,314 | 13,790 |
| 3 Univ of Wis-Madison | 22,661 | 19,571 | 19,948 | 17,708 | 8,066 | 1,818 | 5,005 | 7,772 |
| 4 Univ of Cal Berkeley | 19,550 | 16,595 | 15,195 | 13,664 | 79 | 9,045 | 2,341 | 8,085 |
| 5 University of Georgia | 18,538 | 17,580 | 15,108 | 13,672 | 8,797 | 1,042 | 1,293 | 7,406 |
| 6 Univ of MD College Park | 16,641 | 13,900 | 13,060 | 11,864 | 4,112 | 3,080 | 2,792 | 6,657 |
| 7 Univ of Cal Los Angeles | 15,530 | 13,559 | 12,213 | 13,986 | 4,417 | 225 | 1,025 | 13,863 |
| 8 Univ of Texas at Austin | 15,335 | 13,882 | 9,977 | 8,768 | 3,515 | 7,211 | 2,624 | 1,985 |
| 9 Univ of Pennsylvania | 14,956 | 16,267 | 10,207 | 11,914 | 4,329 | 763 | 2,229 | 7,635 |
| 10 Rutgers the St Univ of NJ | 13,005 | 11,285 | 9,379 | 8,402 | 963 | 5,921 | 3,567 | 2,554 |
| Total, 1st 10 insts. | 215,087 | 200,174 | 176,068 | 162,430 | 61,664 | 49,832 | 29,664 | 73,927 |
| 11 Ohio State University | 12,383 | 13,197 | 7,882 | 3,776 | 3,886 | 906 | 616 | 6,975 |
| 12 Cornell University | 12,049 | 10,414 | 9,724 | 9,058 | 4,695 | 129 | 1,969 | 8,256 |
| 13 University of Minnesota | 11,245 | 8,455 | 7,332 | 7,340 | 5,353 | 2,635 | 1,113 | 2,144 |
| 14 Brandeis University | 11,061 | 11,456 | 9,100 | 7,154 | 3,204 | 142 | 10,535 | 2,180 |
| 15 Johns Hopkins Univ | 10,767 | 10,258 | 9,141 | 6,872 | 3,112 | 300 | 5,084 | 2,271 |
| 16 Univ of Ill Urbana | 10,244 | 7,332 | 6,992 | 8,076 | 3,577 | 1,673 | 216 | 4,778 |
| 17 Univ of NC at Chapel Hill | 10,193 | 10,316 | 9,231 | 7,758 | 55 | 0 | 2,850 | 7,288 |
| 18 Princeton University | 9,704 | 8,242 | 6,693 | 5,870 | 1,851 | 6,128 | 1,033 | 692 |
| 19 Texas A & M University | 9,329 | 10,912 | 11,044 | 10,291 | 5,615 | 174 | 1,923 | 1,617 |
| 20 Pennsylvania State Univ | 8,943 | 7,766 | 6,847 | 6,102 | 3,474 | 1,084 | 2,464 | 1,921 |
| Total, 1st 20 insts. | 321,005 | 298,522 | 260,054 | 234,727 | 93,486 | 63,003 | 57,467 | 107,049 |
| 21 Washington State Univ | 8,237 | 7,581 | 5,262 | 1,102 | 4,797 | 120 | 2,433 | 887 |
| 22 University of Arizona | 7,944 | 7,394 | 7,366 | 7,187 | 3,992 | 58 | 43 | 3,851 |
| 23 Temple University | 7,688 | 6,675 | 7,468 | 5,025 | 129 | 961 | 6,598 | 0 |
| 24 Duke University | 7,048 | 8,310 | 6,575 | 3,242 | 2,481 | 1,365 | 2,586 | 616 |
| 25 Oklahoma State University | 6,866 | 6,076 | 8,219 | 7,744 | 4,682 | 175 | 509 | 1,500 |
| 26 Arizona State University | 6,797 | 4,440 | 3,078 | 2,576 | 805 | 265 | 202 | 5,525 |
| 27 Florida State University | 6,785 | 5,939 | 5,302 | 4,829 | 763 | 984 | 832 | 2,206 |
| 28 Va Polytech Inst & St U | 6,682 | 4,588 | 3,940 | 3,745 | 2,482 | 455 | 282 | 3,463 |
| 29 Michigan State University | 6,622 | 5,105 | 4,876 | 4,862 | 4,717 | 152 | 29 | 1,724 |
| 30 Purdue University | 6,607 | 6,553 | 6,479 | 5,421 | 5,370 | 66 | 683 | 488 |
| Total, 1st 30 insts. | 392,281 | 361,183 | 318,619 | 280,460 | 123,704 | 67,604 | 71,664 | 129,309 |
| 31 Iowa St U of Sci & Tech | 6,289 | 5,564 | 3,478 | 3,027 | 3,168 | 292 | 2,728 | 101 |
| 32 Colorado State University | 6,092 | 4,687 | 3,767 | 3,393 | 1,347 | 209 | 577 | 3,959 |
| 33 Univ. Of Tennessee System | 5,698 | 5,387 | 4,326 | 3,247 | 3,627 | 843 | 927 | 301 |
| 34 Univ of Missouri Columbia | 5,694 | 4,230 | 3,894 | 4,012 | 3,275 | 204 | 1,914 | 301 |
| 35 Univ of South Carolina | 5,343 | 5,638 | 4,392 | 3,982 | 1,324 | 1,048 | 1,488 | 1,483 |
| 36 Georgia Institute of Tech | 5,246 | 4,105 | 1,840 | 2,452 | 4,049 | 104 | 1,093 | 0 |
| 37 Columbia Univ Main Div | 5,117 | 6,569 | 3,557 | 3,748 | 984 | 852 | 2,997 | 284 |
| 38 University of Oklahoma | 4,995 | 3,765 | 3,215 | 3,067 | 1,143 | 606 | 111 | 3,135 |
| 39 University of Washington | 4,921 | 4,286 | 3,573 | 3,147 | 15 | 1,400 | 200 | 3,306 |
| 40 Clemson University | 4,888 | 4,584 | 3,382 | 3,163 | 2,767 | 1,472 | 51 | 598 |
| Total, 1st 40 insts. | 446,564 | 409,998 | 354,043 | 313,698 | 145,403 | 74,634 | 83,750 | 142,777 |
| 41 Univ of Cal Santa Barbara | 4,816 | 2,942 | 2,972 | 3,401 | 1,290 | 38 | 732 | 2,756 |
| 42 Univ of Massachusetts | 4,680 | 3,441 | 2,996 | 2,963 | 80 | 332 | 924 | 3,344 |
| 43 Mass Inst of Technology | 4,645 | 5,109 | 4,857 | 5,624 | 1,655 | 827 | 0 | 2,163 |
| 44 Texas Tech University | 4,620 | 4,016 | 4,084 | 3,381 | 1,755 | 611 | 1,892 | 362 |
| 45 University of Virginia | 4,535 | 2,660 | 2,487 | 2,342 | 319 | 4,020 | 139 | 57 |
| 46 New York University | 4,532 | 5,334 | 5,566 | 5,856 | 1,224 | 1,947 | 92 | 1,269 |
| 47 Florida A & M University | 4,450 | 3,640 | 5,026 | 2,322 | 656 | 344E | 1,248E | 2,202E |
| 48 SUNY at Buffalo | 4,421 | 2,849 | 786 | 487 | 40 | 77 | 481 | 3,823 |
| 49 University of Pittsburgh | 4,246 | 6,006 | 4,128 | 2,912 | 461 | 827 | 134 | 2,824 |
| 50 SUNY at Albany | 4,211 | 3,966 | 3,038 | 2,959 | 81 | 570 | 770 | 2,790 |
| Total, 1st 50 insts. | 491,720 | 449,961 | 387,983 | 342,945 | 152,964 | 84,227 | 90,162 | 164,367 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-64. R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Social sciences total | | | | 1990 subfields | | | |
|---------------------------------------|-----------------------|---------|---------|---------|----------------|----------------------|----------------|---------|
| | 1990 | 1989 | 1988 | 1987 | Eco- nomics | Political science | Soci- ology | Other |
| 51 Univ. of Colorado | 4,208 | 2,629 | 2,741 | 1,938 | 1,060 | 251 | 1,622 | 1,275 |
| 52 University of Chicago | 4,079 | 3,549 | 3,275 | 3,305 | 229 | 945 | 405 | 2,500 |
| 53 Louisiana State Univ | 4,036 | 5,757 | 5,510 | 5,313 | 2,836 | 191 | 581 | 428 |
| 54 Cleveland State Univ | 3,893 | 3,072 | 3,160 | 2,734 | 10 | 5 | 1,401 | 2,477 |
| 55 Tulane University | 3,840 | 589 | 829 | 846 | 820 | 12 | 18 | 2,990 |
| 56 N C State Univ at Raleigh | 3,790 | 2,377 | 2,638 | 2,675 | 2,724 | 102 | 957 | 7 |
| 57 Univ of Cal Irvine | 3,666 | 3,556 | 3,128 | 2,824 | 0 | 1,417 | 607 | 1,642 |
| 58 Carnegie-Mellon Univ | 3,412 | 3,074 | 3,654 | 3,009 | 945 | 889 | 1,578 | 0 |
| 59 Univ of Southern Cal | 3,396 | 2,926 | 2,094 | 1,608 | 242 | 632 | 2,003 | 522 |
| 60 Georgetown University | 3,389 | 4,824 | 4,511 | 4,925 | 115 | 223 | 1,619 | 1,432 |
| Total, 1st 60 insts. | 529,432 | 482,314 | 418,223 | 372,122 | 161,945 | 88,894 | 100,953 | 177,640 |
| 61 Mississippi State Univ | 3,350 | 2,906 | 2,757 | 2,406 | 1,680 | 112 | 787 | 771 |
| 62 Univ of Ill Chicago | 3,309 | 2,292 | 2,062 | 2,018 | 107 | 47 | 20 | 3,135 |
| 63 University of Florida | 3,300 | 5,188 | 2,281 | 2,022 | 513 | 168 | 378 | 2,241 |
| 64 SUNY at Stony Brook | 3,197 | 5,594 | 2,075 | 1,775 | 228 | 792 | 196 | 1,981 |
| 65 Case Western Reserve Univ | 3,188E | 2,595 | 2,854 | 2,323 | 1,326E | 0E | 215E | 1,647E |
| 66 Syracuse University | 3,183 | 2,703 | 2,129 | 3,680 | 233 | 909 | 125 | 1,916 |
| 67 Univ of Hawaii-Manoa | 3,157 | 2,764 | 2,427 | 2,358 | 787 | 61 | 194 | 2,115 |
| 68 University of Connecticut | 3,025 | 3,199 | 2,894 | 2,419 | 135 | 58 | 364 | 2,468 |
| 69 Univ of Alaska Fairbanks | 2,985 | 2,106 | 1,852E | 2,350I | 74 | 35 | 1,159 | 1,717 |
| 70 Indiana University | 2,943 | 3,075 | 2,754 | 1,856 | 221 | 663 | 561 | 1,498 |
| Total, 1st 70 insts. | 561,069 | 508,736 | 442,308 | 395,329 | 167,249 | 91,739 | 104,952 | 197,129 |
| 71 Stanford University | 2,932I | 2,679 | 2,442 | 1,795 | 230I | 123I | 345I | 2,234I |
| 72 George Mason University | 2,926 | 982 | 807 | 595E | 2,145 | 395 | 380 | 6 |
| 73 University of Iowa | 2,893 | 2,404 | 1,930 | 2,300 | 454 | 207 | 753 | 1,479 |
| 74 SUNY at Binghamton | 2,856 | 2,322 | 2,176 | 1,879 | 177 | 376 | 1,288 | 1,015 |
| 75 Univ of Nebraska-Lincoln | 2,774 | 2,651 | 1,291 | 1,764 | 1,966 | 235 | 409 | 164 |
| 76 Northern Illinois Univ | 2,769I | 2,286 | 2,148 | 1,304E | 0I | 321 | 681 | 2,669I |
| 77 The University of Alabama | 2,762 | 2,538 | 1,932 | 1,753 | 1,530 | 626 | 459 | 147 |
| 78 US Naval Postgrad School | 2,748 | 3,031 | 2,860 | 2,112 | 268 | 639 | 1,841 | 0 |
| 79 University of Delaware | 2,705 | 1,544 | 1,473 | 1,294 | 154 | 32 | 901 | 1,618 |
| 80 Yale University | 2,660 | 2,801 | 2,955 | 3,375 | 1,488 | 54 | 80 | 1,038 |
| Total, 1st 80 insts. | 589,094 | 531,974 | 462,322 | 413,500 | 175,661 | 94,458 | 111,476 | 207,499 |
| 81 Univ of Wis-Milwaukee | 2,472 | 2,632 | 2,096 | 1,761 | 156 | 98 | 319 | 1,899 |
| 82 Emory University | 2,465 | 1,922 | 1,234 | 1,528 | 1 | 2,137 | 6 | 321 |
| 83 Oregon State University | 2,300 | 2,299 | 2,152 | 2,064 | 1,393 | 0 | 675 | 232 |
| 84 Univ of Cal San Diego | 2,110 | 1,770 | 1,732 | 1,391 | 379 | 719 | 57 | 955 |
| 85 Univ of Ark Fayetteville | 2,062 | 1,721 | 1,492 | 1,418 | 48 | 202 | 52 | 1,760 |
| 86 University of New Mexico | 2,001 | 1,484 | 1,433 | 1,544 | 167 | 171 | 354 | 1,309 |
| 87 Univ of Cal Davis | 1,924 | 1,589 | 1,538 | 1,166 | 61 | 1,243 | 169 | 451 |
| 88 University of Idaho | 1,848 | 1,549 | 1,571 | 1,282 | 1,404 | 26 | 409 | 9 |
| 89 Northwestern University | 1,809 | 1,227 | 930 | 1,004 | 525 | 445 | 141 | 698 |
| 90 University of Miami | 1,808 | 1,531 | 490 | 405 | 88 | 0 | 342 | 1,378 |
| Total, 1st 90 insts. | 609,893 | 549,698 | 476,990 | 427,063 | 179,883 | 99,499 | 114,000 | 216,511 |
| 91 Memphis State University | 1,756 | 1,177 | 896 | 772 | 597 | 32 | 563 | 564 |
| 92 Desert Research Institute | 1,680 | 1,643 | 1,372 | 807 | 0 | 0 | 0 | 1,680 |
| 93 American University | 1,676 | 1,119 | 1,093 | 661 | 219 | 760 | 0 | 697 |
| 94 Illinois State University | 1,663 | 1,573 | 1,637 | 1,475 | 17 | 18 | 0 | 1,628 |
| 95 Kans St U - Ag & App Sci | 1,652 | 1,693 | 1,464 | 1,503 | 1,242 | 29 | 231 | 150 |
| 96 Boston University | 1,636 | 1,460 | 957 | 457 | 831 | 0 | 3 | 802 |
| 97 Wayne State University | 1,597 | 1,067 | 1,059 | 1,578 | 247 | 109 | 46 | 1,195 |
| 98 Vanderbilt University | 1,561 | 1,182 | 1,543 | 1,898 | 26 | 1,186 | 110 | 239 |
| 99 Univ of Rhode Island | 1,553 | 609I | 579 | 1,096 | 1,508 | 0 | 45 | 0 |
| 100 Virginia Commonwealth Univ | 1,533 | 751 | 824 | 540 | 32 | 581 | 21 | 899 |
| Total, 1st 100 insts. | 626,200 | 561,972 | 488,414 | 437,850 | 184,602 | 102,214 | 115,019 | 224,365 |
| Total, all other sampled insts. | 67,134 | 65,189 | 64,742 | 64,322 | 16,469 | 8,425 | 17,299 | 24,941 |
| Estimated total non-sampled insts. | 8,841 | 9,452 | 0 | 0 | 2,120 | 906 | 1,692 | 4,123 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-65. Federally financed R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 1 of 2

| Institution ranking | Social sciences total | | | | 1990 subfields | | | |
|------------------------------|-----------------------|---------|---------|---------|----------------|----------------------|----------------|--------|
| | 1990 | 1989 | 1988 | 1987 | Eco- nomics | Political science | Soci- ology | Other |
| Total, all institutions | 225,434 | 211,244 | 188,395 | 168,258 | 54,469 | 24,896 | 59,769 | 86,300 |
| 1 University of Michigan | 12,745 | 15,829 | 13,050 | 13,835 | 7,222 | 1,710 | 2,562 | 1,251 |
| 2 Harvard University | 12,313 | 14,527 | 12,956 | 10,302 | 2,957 | 6,288 | 3,999 | 2,672 |
| 3 Univ of Wis-Madison | 10,311 | 9,899 | 11,476 | 9,097 | 2,804 | 239 | 2,970 | 4,298 |
| 4 Ohio State University | 8,913 | 8,857 | 5,066 | 1,908 | 2,282 | 226 | 1,203 | 6,202 |
| 5 Univ of Cal Berkeley | 6,224 | 5,518 | 5,584 | 4,446 | 28 | 1,720 | 1,042 | 3,434 |
| 6 Univ of NC at Chapel Hill | 5,721 | 5,794 | 4,945 | 3,965 | 32 | 0 | 2,102 | 3,567 |
| 7 Johns Hopkins Univ | 5,274 | 6,036 | 5,571 | 5,460 | 110 | 120 | 4,203 | 841 |
| 8 Temple University | 4,597 | 2,568 | 881 | 576 | 0 | 98 | 4,499 | 0 |
| 9 Rutgers the St Univ of NJ | 4,437 | 3,334 | 3,408 | 3,500 | 55 | 1,611 | 1,224 | 1,47 |
| 10 University of Minnesota | 3,877 | 3,025 | 2,227 | 1,501 | 1,865 | 148 | 682 | 1,182 |
| Total, 1st 10 insts. | 74,415 | 75,387 | 65,164 | 54,590 | 17,375 | 12,160 | 19,886 | 24,994 |
| 11 Duke University | 3,876 | 4,531 | 3,778 | 1,406 | 1,215 | 64 | 2,388 | 209 |
| 12 Brandeis University | 3,870 | 3,859 | 3,685 | 3,472 | 93 | 60 | 3,638 | 79 |
| 13 Univ of Pennsylvania | 3,287 | 4,052 | 4,688 | 4,821 | 936 | 311 | 1,106 | 934 |
| 14 Univ of Texas at Austin | 3,269 | 3,467 | 1,712 | 1,343 | 754 | 954 | 1,354 | 207 |
| 15 Michigan State University | 3,089 | 2,027 | 2,134 | 2,262 | 2,797 | 79 | 13 | 200 |
| 16 SUNY at Albany | 3,075 | 2,782 | 2,005 | 1,676 | 0 | 45 | 483 | 2,547 |
| 17 Colorado State University | 3,074 | 2,190 | 1,812 | 1,697 | 811 | 141 | 465 | 1,657 |
| 18 Pennsylvania State Univ | 2,996 | 2,091 | 2,177 | 2,069 | 1,186 | 34 | 801 | 975 |
| 19 Georgia Institute of Tech | 2,959 | 2,304 | 932 | 1,288 | 2,283 | 59 | 617 | 0 |
| 20 Univ of Ill Urbana | 2,922 | 2,414 | 2,169 | 2,491 | 703 | 485 | 132 | 1,602 |
| Total, 1st 20 insts. | 106,832 | 105,104 | 90,256 | 77,115 | 28,153 | 14,392 | 30,883 | 33,404 |
| 21 University of Washington | 2,919 | 2,857 | 2,432 | 2,145 | 5 | 120 | 87 | 2,707 |
| 22 Univ of Cal Santa Barbara | 2,895 | 1,279 | 1,255 | 1,361 | 437 | 0 | 301 | 2,157 |
| 23 US Naval Postgrad School | 2,748 | 3,031 | 2,860 | 2,112 | 268 | 639 | 1,841 | 0 |
| 24 Univ. of Colorado | 2,672 | 1,513 | 1,899 | 1,364 | 467 | 112 | 1,243 | 850 |
| 25 Florida A & M University | 2,642 | 1,268 | 1,850 | 1,097 | 605 | 0 | 0 | 2,037 |
| 26 Univ of Cal Los Angeles | 2,605 | 2,563 | 2,427 | 1,862 | 171 | 27 | 478 | 1,929 |
| 27 Univ of MD College Park | 2,574 | 1,479 | 1,355 | 1,240 | 186 | 248 | 90 | 2,050 |
| 28 Columbia Univ Main Div | 2,534 | 4,134 | 1,512 | 1,720 | 259 | 89 | 1,909 | 277 |
| 29 Georgetown University | 2,372 | 3,365 | 2,847 | 3,068 | 69 | 25 | 1,171 | 1,107 |
| 30 VA Polytech Inst & St U | 2,200 | 1,225 | 1,889 | 1,557 | 441 | 47 | 140 | 1,572 |
| Total, 1st 30 insts. | 132,993 | 127,818 | 110,582 | 94,641 | 31,061 | 15,699 | 38,143 | 48,090 |
| 31 Arizona State University | 2,076 | 487 | 468 | 318 | 43 | 86 | 0 | 1,947 |
| 32 Texas Tech University | 1,977 | 1,659 | 2,520 | 2,046 | 598 | 184 | 1,150 | 45 |
| 33 Washington State Univ | 1,942 | 1,994 | 1,803 | 338 | 1,502 | 0 | 66 | 374 |
| 34 Cornell University | 1,880 | 2,047 | 1,684 | 1,659 | 858 | 24 | 369 | 629 |
| 35 Carnegie-Mellon Univ | 1,863 | 1,754 | 1,711 | 1,861 | 621 | 602 | 640 | 0 |
| 36 Tulane University | 1,835 | 287 | 216 | 297 | 0 | 8 | 12 | 1,815 |
| 37 Iowa St U of Sci & Tech | 1,792 | 1,693 | 409 | 739 | 701 | 0 | 1,069 | 22 |
| 38 University of Arizona | 1,687 | 1,830 | 1,730 | 2,082 | 836 | 22 | 17 | 812 |
| 39 Texas A & M University | 1,639 | 2,188 | 1,889 | 1,004 | 759 | 36 | 440 | 404 |
| 40 Stanford University | 1,564 | 1,485 | 1,254 | 1,319 | 971 | 11 | 244 | 1,222 |
| Total, 1st 40 insts. | 151,248 | 143,242 | 124,266 | 106,304 | 37,076 | 16,662 | 42,150 | 55,360 |
| 41 SUNY at Stony Brook | 1,521 | 958 | 1,160 | 1,241 | 156 | 420 | 3 | 942 |
| 42 University of Georgia | 1,504 | 1,705 | 1,743 | 1,532 | 738 | 0 | 151 | 615 |
| 43 Univ. Of Tennessee System | 1,491 | 1,326 | 1,124 | 1,175 | 887 | 343 | 225 | 36 |
| 44 Univ of Southern Cal | 1,479 | 1,217 | 985 | 698 | 140 | 0 | 1,108 | 231 |
| 45 Purdue University | 1,454 | 1,465 | 1,477 | 1,393 | 1,097 | 0 | 305 | 52 |
| 46 Clemson University | 1,419 | 1,303 | 1,562 | 759 | 1,297 | 61 | 0 | 61 |
| 47 Univ of South Carolina | 1,415 | 1,129 | 950 | 1,065 | 144 | 320 | 616 | 335 |
| 48 Univ of Missouri Columbia | 1,402 | 1,073 | 859 | 780 | 977 | 9 | 191 | 225 |
| 49 University of Miami | 1,394 | 1,208 | 367 | 189 | 64 | 0 | 309 | 1,021 |
| 50 American University | 1,273 | 979 | 1,023 | 521 | 219 | 594 | 0 | 460 |
| Total, 1st 50 insts. | 165,600 | 155,605 | 135,516 | 115,657 | 42,795 | 18,409 | 45,058 | 59,338 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-65. Federally financed R&D expenditures in the social sciences at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Page 2 of 2

| Institution ranking | Social sciences total | | | | 1990 subfields | | | |
|------------------------------------|-----------------------|---------|---------|---------|----------------|-------------------|------------|--------|
| | 1990 | 1989 | 1988 | 1987 | Eco-nomics | Political science | Soci-ology | Other |
| 51 Desert Research Institute | 1,265 | 1,210 | 930 | 533 | 0 | 0 | 0 | 1,265 |
| 52 University of Pittsburgh | 1,264 | 1,021 | 470 | 239 | 241 | 190 | 0 | 833 |
| 53 Univ of Massachusetts | 1,242 | 1,044 | 714 | 436 | 20 | 37 | 516 | 669 |
| 54 Univ of Cal Irvine | 1,229 | 1,321 | 1,217 | 1,429 | 0 | 496 | 61 | 672 |
| 55 Northern Illinois Univ | 1,161 | 1,053 | 755 | 580 | 01 | 221 | 681 | 1,071 |
| 56 Mississippi State Univ | 1,151 | 770 | 753 | 666 | 451 | 0 | 248 | 452 |
| 57 SUNY at Buffalo | 1,139 | 924 | 326 | 161 | 0 | 0 | 106 | 1,033 |
| 58 Vanderbilt University | 1,087 | 181 | 650 | 770 | 14 | 877 | 64 | 132 |
| 59 Oklahoma State University | 1,035 | 283 | 851 | 862 | 750 | 122 | 162 | 1 |
| 60 Princeton University | 1,031 | 1,472 | 1,880 | 1,809 | 68 | 858 | 105 | 0 |
| Total, 1st 60 insts. | 177,204 | 164,884 | 144,062 | 123,142 | 44,339 | 21,011 | 46,388 | 65,466 |
| 61 University of Chicago | 1,027 | 1,193 | 952 | 968 | 114 | 42 | 25 | 846 |
| 62 Univ of Rhode Island | 1,012 | 179 | 188 | 190 | 987 | 0 | 25 | 0 |
| 63 Cleveland State Univ | 1,010 | 465 | 121 | 127 | 0 | 2 | 967 | 41 |
| 64 Indiana University | 997 | 879 | 815 | 487 | 37 | 274 | 244 | 442 |
| 65 Portland State University | 950 | 699 | 558 | 426 | 0 | 93 | 0 | 857 |
| 66 Mass Inst of Technology | 927 | 1,310 | 1,949 | 2,510 | 445 | 124 | 0 | 358 |
| 67 University of Iowa | 904 | 791 | 640 | 944 | 209 | 31 | 247 | 417 |
| 68 Univ of New Hampshire | 867 | 1,742 | 601 | 455 | 0 | 0 | 0 | 867 |
| 69 University of Delaware | 867 | 477 | 308 | 214 | 83 | 6 | 778 | 0 |
| 70 Univ of Wis-Milwaukee | 865 | 692 | 326 | 348 | 0 | 5 | 0 | 860 |
| Total, 1st 70 insts. | 186,630 | 173,311 | 150,520 | 129,811 | 46,214 | 21,588 | 48,674 | 70,154 |
| 71 W C State Univ at Raleigh | 833 | 655 | 774 | 846 | 698 | 0 | 135 | 0 |
| 72 Syracuse University | 827 | 956 | 904 | 2,374 | 54 | 42 | 72 | 659 |
| 73 Univ of Ill Chicago | 817 | 522 | 671 | 510 | 30 | 15 | 1 | 771 |
| 74 Fordham University | 801 | 815 | 1,375 | 1,618 | 0 | 0 | 801 | 0 |
| 75 University of New Mexico | 785 | 1,032 | 1,057 | 1,074 | 0 | 11 | 226 | 548 |
| 76 U Tex Hlth Sci Ctr Houstn | 782 | 948 | 915 | 1,964 | 0 | 0 | 782 | 0 |
| 77 Univ of Nebraska-Lincoln | 754 | 572 | 343 | 242 | 166 | 174 | 289 | 125 |
| 78 Univ of Alaska Fairbanks | 748 | 765 | 672E | 643 | 8 | 22 | 65 | 653 |
| 79 University of Kentucky | 744 | 567 | 577 | 350 | 130 | 20 | 512 | 82 |
| 80 University of Montana | 744 | 51 | 54E | 199 | 32 | 0 | 0 | 712 |
| Total, 1st 80 insts. | 194,465 | 180,194 | 157,862 | 138,631 | 47,332 | 21,872 | 51,557 | 73,704 |
| 81 Oregon State University | 693 | 706 | 690 | 706 | 245 | 0 | 344 | 104 |
| 82 Southern Methodist Univ | 666 | 378 | 583 | 576 | 01 | 01 | 01 | 666 |
| 83 University of Florida | 663 | 443 | 514 | 464 | 0 | 0 | 167 | 496 |
| 84 Chas R Drew U of Med & Sc | 660 | 617 | 0 | 269 | 01 | 01 | 660 | 01 |
| 85 Northwestern University | 605 | 493 | 524 | 595 | 336 | 0 | 71 | 198 |
| 86 Case Western Reserve Univ | 603 | 613 | 487 | 568 | 0 | 0 | 213 | 390 |
| 87 San Diego State Univ | 599 | 812 | 849 | 530 | 10 | 0 | 208 | 381 |
| 88 Boston University | 586 | 704 | 313 | 219 | 236 | 0 | 0 | 350 |
| 89 University of Oklahoma | 576 | 488 | 472 | 465 | 99 | 14 | 0 | 463 |
| 90 Howard University | 574 | 533 | 493 | 453E | 01 | 358 | 01 | 216 |
| Total, 1st 90 insts. | 200,690 | 185,981 | 162,787 | 143,476 | 48,258 | 22,244 | 53,220 | 76,968 |
| 91 University of Oregon | 567 | 555 | 370 | 406 | 100 | 137 | 10 | 320 |
| 92 George Mason University | 547 | 9 | 270 | 196 | 68 | 117 | 362 | 0 |
| 93 South Carolina St College | 544 | 340 | 299 | 220 | 458 | 01 | 86 | 01 |
| 94 Yale University | 544 | 949 | 1,344 | 1,563 | 357 | 0 | 67 | 120 |
| 95 Univ of Hawaii-Manoa | 524 | 506 | 583 | 586 | 96 | 36 | 1 | 391 |
| 96 Kans St U - Ag & App Sci | 488 | 717 | 559 | 540 | 425 | 23 | 17 | 23 |
| 97 University of Idaho | 488 | 322 | 776 | 286 | 242 | 0 | 238 | 8 |
| 98 Loyola Univ - Chicago | 487 | 475 | 89 | 76 | 0 | 0 | 481 | 6 |
| 99 Univ of Cal Davis | 474 | 361 | 526 | 260 | 13 | 281 | 33 | 147 |
| 100 Univ of Cal San Diego | 469 | 460 | 396 | 304 | 223 | 218 | 9 | 19 |
| Total, 1st 100 insts. | 205,822 | 190,675 | 167,999 | 147,913 | 50,240 | 23,056 | 54,524 | 78,002 |
| Total, all other sampled insts. | 17,382 | 18,217 | 20,396 | 20,345 | 3,929 | 1,710 | 5,089 | 6,654 |
| Estimated total non-sampled insts. | 2,230 | 2,352 | 0 | 0 | 300 | 130 | 156 | 1,644 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-66. Current fund expenditures for research equipment at universities and colleges, by science and engineering field and source of funds: fiscal years 1983, 1989, and 1990

(Dollars in thousands)

| Field | Total | | | Federal | | | Non-Federal | | |
|------------------------------|---------|-----------|-----------|---------|---------|---------|-------------|---------|---------|
| | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 |
| Total | 454,426 | 994,195 | 1,013,667 | 280,575 | 591,825 | 595,154 | 173,851 | 402,371 | 418,513 |
| Engineering, total..... | 79,901 | 205,199 | 219,519 | 51,923 | 117,366 | 124,922 | 27,978 | 87,832 | 94,597 |
| Aeronautical and | | | | | | | | | |
| astronautical | 3,481 | 11,766 | 10,515 | 2,651 | 8,758 | 7,963 | 830 | 3,008 | 2,553 |
| Chemical | 6,032 | 18,654 | 17,211 | 3,480 | 9,429 | 7,770 | 2,552 | 9,225 | 9,441 |
| Civil | 7,353 | 16,193 | 20,443 | 3,727 | 9,048 | 11,768 | 3,626 | 7,165 | 8,675 |
| Electrical | 22,602 | 49,400 | 56,010 | 16,042 | 29,240 | 33,622 | 6,260 | 20,159 | 22,388 |
| Mechanical | 11,147 | 29,067 | 32,651 | 7,635 | 16,533 | 18,085 | 3,512 | 12,534 | 14,566 |
| Metallurgical and | | | | | | | | | |
| materials 1/..... | NA | NA | 28,194 | NA | NA | 19,156 | NA | NA | 9,038 |
| Other, n.e.c. | 29,286 | 80,119 | 54,494 | 18,388 | 44,358 | 26,558 | 10,898 | 35,761 | 27,936 |
| All sciences, total | 528,867 | 1,092,922 | 1,133,885 | 309,196 | 597,715 | 614,903 | 219,671 | 495,207 | 518,982 |
| Physical sciences | 81,041 | 179,688 | 187,745 | 63,614 | 132,204 | 140,630 | 17,427 | 47,484 | 47,115 |
| Astronomy | 4,187 | 9,968 | 13,145 | 3,518 | 6,901 | 8,290 | 1,502 | 4,268 | 2,574 |
| Chemistry | 32,631 | 75,405 | 72,706 | 23,188 | 52,589 | 51,224 | 9,443 | 22,816 | 21,482 |
| Physics | 36,699 | 81,974 | 89,572 | 30,555 | 64,488 | 73,071 | 6,144 | 17,485 | 16,501 |
| Other, n.e.c. | 7,524 | 12,341 | 12,322 | 6,353 | 8,225 | 8,045 | 1,171 | 4,116 | 4,277 |
| Environmental sciences | 31,096 | 65,375 | 69,904 | 19,166 | 43,854 | 46,235 | 11,930 | 21,521 | 23,669 |
| Atmospheric | 5,219 | 12,117 | 10,830 | 3,717 | 7,869 | 8,256 | 1,502 | 4,268 | 2,574 |
| Earth sciences | 11,559 | 25,536 | 28,921 | 6,324 | 16,182 | 16,716 | 5,235 | 9,354 | 12,204 |
| Oceanography | 11,350 | 17,504 | 19,580 | 7,234 | 13,798 | 15,103 | 4,116 | 3,706 | 4,477 |
| Other, n.e.c. | 2,968 | 10,218 | 10,573 | 1,891 | 6,004 | 6,160 | 1,077 | 4,214 | 4,413 |
| Mathematical sciences | 3,745 | 10,528 | 10,114 | 2,484 | 6,916 | 6,602 | 1,261 | 3,611 | 3,512 |
| Computer sciences | 20,839 | 42,024 | 44,688 | 14,475 | 29,028 | 28,391 | 6,364 | 12,996 | 16,297 |
| Life sciences | 211,318 | 439,928 | 430,266 | 114,972 | 237,578 | 224,884 | 96,346 | 202,350 | 205,382 |
| Agricultural sciences | 40,659 | 60,642 | 53,429 | 10,920 | 18,063 | 14,490 | 29,739 | 42,579 | 38,939 |
| Biological sciences | 74,090 | 175,512 | 170,523 | 48,687 | 109,566 | 100,983 | 25,403 | 65,746 | 69,241 |
| Medical sciences | 89,492 | 183,803 | 187,108 | 51,249 | 98,377 | 99,752 | 38,243 | 85,426 | 87,356 |
| Other, n.e.c. | 7,077 | 20,171 | 19,205 | 4,116 | 11,572 | 9,659 | 2,961 | 8,599 | 9,546 |
| Psychology | 6,604 | 10,625 | 10,825 | 4,597 | 6,902 | 6,709 | 2,007 | 3,723 | 4,116 |
| Social sciences | 9,445 | 14,331 | 15,013 | 3,098 | 4,675 | 4,693 | 6,347 | 9,655 | 10,320 |
| Economics | 2,147 | 3,968 | 3,924 | 861 | 976 | 926 | 1,286 | 2,992 | 2,998 |
| Political science | 870 | 1,545 | 1,422 | 322 | 346 | 328 | 548 | 1,199 | 1,094 |
| Sociology | 1,413 | 3,074 | 2,768 | 844 | 1,112 | 1,180 | 569 | 1,962 | 1,588 |
| Other, n.e.c. | 5,015 | 5,743 | 6,900 | 1,071 | 2,241 | 2,259 | 3,944 | 3,502 | 4,641 |
| Other sciences, n.e.c. | 10,437 | 26,499 | 25,594 | 6,246 | 13,301 | 12,089 | 4,191 | 13,198 | 13,505 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-67. Current fund expenditures for research equipment at doctorate-granting institutions, by science and engineering field and source of funds: fiscal years 1983, 1989, and 1990

[Dollars in thousands]

| Field | Total | | | Federal | | | Non-Federal | | |
|---|---------|-----------|-----------|---------|---------|---------|-------------|---------|---------|
| | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 | 1983 | 1989 | 1990 |
| Total | 442,523 | 968,558 | 986,449 | 273,349 | 579,020 | 582,498 | 169,174 | 389,538 | 403,951 |
| Engineering, total..... | 78,275 | 198,846 | 212,457 | 51,099 | 114,397 | 123,353 | 27,176 | 84,449 | 89,104 |
| Aeronautical and astronautical | 3,421 | 11,404 | 10,500 | 2,596 | 8,396 | 7,955 | 825 | 3,008 | 2,545 |
| Chemical | 6,021 | 18,398 | 17,132 | 3,476 | 9,222 | 7,698 | 2,545 | 9,176 | 9,434 |
| Civil | 7,058 | 15,269 | 19,666 | 3,599 | 8,203 | 11,464 | 3,459 | 7,066 | 8,202 |
| Electrical | 22,170 | 47,286 | 55,146 | 15,794 | 28,978 | 33,197 | 6,376 | 18,308 | 21,949 |
| Mechanical | 10,918 | 28,387 | 31,144 | 7,491 | 16,111 | 17,542 | 3,427 | 12,276 | 13,602 |
| Metallurgical and materials 1/..... | NA | NA | 28,103 | NA | NA | 19,076 | NA | NA | 9,027 |
| Other, n.e.c. | 28,687 | 78,102 | 50,766 | 18,143 | 43,487 | 26,421 | 10,544 | 34,615 | 24,345 |
| All sciences, total | 515,887 | 1,070,319 | 1,108,079 | 301,033 | 586,869 | 602,003 | 214,854 | 483,450 | 506,076 |
| Physical sciences | 78,614 | 175,018 | 181,847 | 62,266 | 129,585 | 136,922 | 16,348 | 45,433 | 44,925 |
| Astronomy | 4,130 | 9,968 | 13,145 | 3,475 | 6,901 | 8,290 | 655 | 3,067 | 4,855 |
| Chemistry | 31,081 | 72,444 | 69,286 | 22,416 | 51,064 | 49,585 | 8,665 | 21,380 | 19,701 |
| Physics | 35,942 | 80,396 | 87,192 | 30,066 | 63,457 | 71,025 | 5,876 | 16,939 | 16,167 |
| Other, n.e.c. | 7,461 | 12,210 | 12,224 | 6,309 | 8,163 | 8,022 | 1,152 | 4,047 | 4,202 |
| Environmental sciences | 29,936 | 63,821 | 67,424 | 18,426 | 42,782 | 44,707 | 11,510 | 21,039 | 22,717 |
| Atmospheric | 5,135 | 12,032 | 10,778 | 3,639 | 7,841 | 8,241 | 1,496 | 4,191 | 2,537 |
| Earth sciences | 11,058 | 24,951 | 27,199 | 5,933 | 15,775 | 15,663 | 3,125 | 9,176 | 11,536 |
| Oceanography | 10,995 | 16,937 | 19,115 | 7,078 | 13,334 | 14,733 | 3,917 | 3,603 | 4,382 |
| Other, n.e.c. | 2,748 | 9,901 | 10,332 | 1,776 | 5,832 | 6,070 | 972 | 4,069 | 4,262 |
| Mathematical sciences | 3,238 | 9,660 | 9,819 | 2,350 | 6,640 | 6,524 | 888 | 3,020 | 3,295 |
| Computer sciences | 20,169 | 41,383 | 42,434 | 14,227 | 28,870 | 27,034 | 5,942 | 12,513 | 15,400 |
| Life sciences | 207,370 | 429,910 | 422,334 | 111,965 | 232,370 | 220,909 | 95,405 | 197,540 | 201,425 |
| Agricultural sciences | 39,162 | 56,896 | 50,887 | 9,640 | 16,080 | 12,828 | 29,522 | 40,816 | 38,059 |
| Biological sciences | 71,919 | 169,837 | 165,325 | 47,146 | 106,808 | 98,808 | 24,773 | 63,029 | 66,517 |
| Medical sciences | 89,350 | 183,172 | 186,948 | 51,157 | 98,000 | 99,629 | 38,193 | 85,172 | 87,319 |
| Other, n.e.c. | 6,939 | 20,005 | 19,174 | 4,022 | 11,482 | 9,644 | 2,917 | 8,523 | 9,530 |
| Psychology | 6,163 | 10,217 | 10,090 | 4,272 | 6,659 | 6,364 | 1,891 | 3,558 | 3,726 |
| Social sciences | 8,567 | 13,329 | 14,554 | 2,638 | 4,471 | 4,640 | 5,929 | 8,858 | 9,914 |
| Economics | 1,800 | 3,836 | 3,857 | 657 | 955 | 920 | 1,143 | 2,881 | 2,937 |
| Political science | 779 | 1,518 | 1,359 | 269 | 336 | 319 | 510 | 1,182 | 1,040 |
| Sociology | 1,206 | 2,808 | 2,634 | 696 | 1,086 | 1,171 | 510 | 1,722 | 1,463 |
| Other, n.e.c. | 4,782 | 5,167 | 6,704 | 1,016 | 2,094 | 2,230 | 3,766 | 3,073 | 4,474 |
| Other sciences, n.e.c. | 10,191 | 26,374 | 25,490 | 6,106 | 13,246 | 12,045 | 4,085 | 13,128 | 13,445 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-68. Current fund expenditures for research equipment at universities and colleges, by science and engineering field, source of funds, and type of control: fiscal year 1990

(Dollars in thousands)

| Field | Total | | | Federal | | | Non-Federal | | |
|------------------------------|-----------|---------|---------|---------|---------|---------|-------------|---------|---------|
| | Total | Public | Private | Total | Public | Private | Total | Public | Private |
| Total | 1,013,667 | 661,017 | 352,650 | 595,154 | 340,960 | 254,194 | 418,513 | 320,057 | 98,455 |
| Engineering, total..... | 219,519 | 150,810 | 68,709 | 124,922 | 76,994 | 47,927 | 94,597 | 73,816 | 20,781 |
| Aeronautical and | | | | | | | | | |
| astronautical | 10,515 | 5,274 | 5,241 | 7,963 | 3,450 | 4,513 | 2,553 | 1,825 | 728 |
| Chemical | 17,211 | 12,526 | 4,685 | 7,770 | 4,889 | 2,881 | 9,441 | 7,437 | 2,004 |
| Civil | 20,443 | 16,005 | 4,438 | 11,768 | 8,925 | 2,843 | 8,675 | 7,080 | 1,595 |
| Electrical | 56,010 | 35,325 | 20,685 | 33,622 | 18,779 | 14,843 | 22,388 | 16,546 | 5,842 |
| Mechanical | 32,651 | 20,889 | 11,762 | 18,085 | 9,905 | 8,180 | 14,566 | 10,984 | 3,582 |
| Metallurgical and | | | | | | | | | |
| materials 1/..... | 28,194 | 22,698 | 5,496 | 19,156 | 15,741 | 3,415 | 9,038 | 6,957 | 2,081 |
| Other, n.e.c. | 54,494 | 38,293 | 16,201 | 26,558 | 15,306 | 11,252 | 27,936 | 22,987 | 4,949 |
| All sciences, total | 1,133,885 | 785,335 | 348,550 | 614,903 | 387,416 | 227,487 | 518,982 | 397,919 | 121,063 |
| Physical sciences | 187,745 | 114,188 | 73,557 | 140,630 | 77,971 | 62,659 | 47,115 | 36,217 | 10,898 |
| Astronomy | 13,145 | 6,891 | 6,254 | 8,290 | 3,586 | 4,704 | 4,855 | 3,305 | 1,550 |
| Chemistry | 72,706 | 48,947 | 23,759 | 51,224 | 33,129 | 18,095 | 21,482 | 15,818 | 5,664 |
| Physics | 89,572 | 51,122 | 38,450 | 73,071 | 37,766 | 35,305 | 16,501 | 13,356 | 3,145 |
| Other, n.e.c. | 12,322 | 7,228 | 5,094 | 8,045 | 3,490 | 4,555 | 4,277 | 3,738 | 539 |
| Environmental sciences | 69,904 | 50,470 | 19,433 | 46,235 | 29,815 | 16,420 | 23,669 | 20,655 | 3,014 |
| Atmospheric | 10,830 | 9,138 | 1,692 | 8,256 | 6,634 | 1,622 | 2,574 | 2,504 | 70 |
| Earth sciences | 28,921 | 18,766 | 10,154 | 16,716 | 8,318 | 8,399 | 12,204 | 10,449 | 1,756 |
| Oceanography | 19,580 | 14,796 | 4,784 | 15,103 | 10,885 | 4,218 | 4,477 | 3,911 | 566 |
| Other, n.e.c. | 10,573 | 7,770 | 2,803 | 6,160 | 3,979 | 2,181 | 4,413 | 3,791 | 622 |
| Mathematical sciences | 10,114 | 5,826 | 4,287 | 6,602 | 3,151 | 3,451 | 3,512 | 2,675 | 837 |
| Computer sciences | 44,688 | 20,629 | 24,059 | 28,391 | 9,063 | 19,328 | 16,297 | 11,566 | 4,731 |
| Life sciences | 430,266 | 280,715 | 149,551 | 224,884 | 127,440 | 97,444 | 205,382 | 153,275 | 52,107 |
| Agricultural sciences | 53,429 | 51,141 | 2,288 | 14,490 | 13,893 | 597 | 38,939 | 37,248 | 1,691 |
| Biological sciences | 170,523 | 105,658 | 64,865 | 100,983 | 53,905 | 47,078 | 69,541 | 51,754 | 17,787 |
| Medical sciences | 187,108 | 112,277 | 74,831 | 99,752 | 56,065 | 43,687 | 87,356 | 56,212 | 31,144 |
| Other, n.e.c. | 19,205 | 11,638 | 7,567 | 9,659 | 3,577 | 6,082 | 9,546 | 8,061 | 1,485 |
| Psychology | 10,825 | 6,822 | 4,003 | 6,709 | 3,763 | 2,946 | 4,116 | 3,058 | 1,057 |
| Social sciences | 15,013 | 11,814 | 3,199 | 4,693 | 3,351 | 1,342 | 10,320 | 8,463 | 1,857 |
| Economics | 3,924 | 3,343 | 581 | 926 | 693 | 233 | 2,998 | 2,650 | 348 |
| Political science | 1,422 | 902 | 520 | 328 | 154 | 174 | 1,094 | 748 | 346 |
| Sociology | 2,768 | 2,209 | 559 | 1,180 | 887 | 293 | 1,588 | 1,322 | 266 |
| Other, n.e.c. | 6,900 | 5,360 | 1,540 | 2,259 | 1,617 | 642 | 4,641 | 3,743 | 898 |
| Other sciences, n.e.c. | 25,594 | 19,743 | 5,851 | 12,089 | 9,411 | 2,678 | 13,505 | 10,332 | 3,173 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTE: n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-69. Total and federally financed current-fund expenditures for research equipment at universities and colleges: fiscal years 1987-90

[Dollars in thousands]

Page 1 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------|-----------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 1,013,667 | 994,195 | 918,919 | 845,683 | 595,154 | 591,825 | 575,717 | 525,762 |
| 1 Univ of Wis-Madison | 29,015 | 28,875 | 25,303 | 26,352 | 15,693 | 15,517 | 13,376 | 14,439 |
| 2 Johns Hopkins Univ | 25,384 | 26,830 | 27,802 | 25,910 | 23,199 | 24,712 | 25,983 | 24,547 |
| 3 Mass Inst of Technology | 21,498 | 13,957 | 19,344 | 19,967 | 15,468 | 8,693 | 14,386 | 15,501 |
| 4 Cornell University | 21,461 | 22,844 | 24,039 | 27,143 | 13,108 | 14,583 | 16,032 | 16,906 |
| 5 Stanford University | 20,231 | 19,139 | 23,919 | 20,138 | 16,641 | 16,755 | 21,791 | 18,705 |
| 6 Univ of Ill Urbana | 19,116 | 21,841 | 21,709 | 23,147 | 10,637 | 13,336 | 13,115 | 14,060 |
| 7 Louisiana State Univ | 18,836 | 14,114 | 9,411 | 5,954 | 10,539 | 6,015 | 2,687 | 2,641 |
| 8 University of Washington | 16,714 | 19,316 | 14,833 | 18,632 | 13,784 | 13,832 | 11,853 | 12,685 |
| 9 University of Minnesota | 16,021 | 15,851 | 10,868 | 10,801 | 8,662 | 8,621 | 6,365 | 6,160E |
| 10 University of Arizona | 15,894 | 12,300 | 11,229 | 10,707 | 9,438 | 7,092 | 7,118 | 6,167 |
| Total, 1st 10 insts. | 204,170 | 195,067 | 188,457 | 188,751 | 137,169 | 129,156 | 132,706 | 131,811 |
| 11 Texas A & M University | 15,743 | 14,023 | 12,120 | 14,912 | 6,601 | 4,339 | 5,217 | 2,792 |
| 12 California Inst of Tech | 14,583 | 13,371 | 11,147 | 12,732 | 13,176 | 11,557 | 9,757 | 11,270E |
| 13 Pennsylvania State Univ | 13,967 | 18,400 | 11,301 | 9,348 | 7,411 | 11,384 | 5,795 | 4,559 |
| 14 University of Michigan | 11,881 | 15,696 | 15,308 | 13,145E | 7,639 | 10,709 | 9,464 | 7,689E |
| 15 Columbia Univ Main Div | 11,709 | 10,443 | 10,852 | 10,696 | 10,044 | 8,192 | 8,344 | 9,316 |
| 16 Yale University | 11,399 | 11,010 | 11,748 | 9,609 | 8,690 | 8,329 | 9,538 | 7,535 |
| 17 Univ of Texas at Austin | 11,001 | 11,454 | 10,158 | 17,720 | 6,952 | 7,875 | 7,422 | 14,674 |
| 18 Univ of Cal San Diego | 10,989 | 8,630 | 7,672 | 8,078 | 7,215 | 6,957 | 5,820 | 5,654 |
| 19 Univ of Pennsylvania | 10,867 | 9,436 | 7,511 | 8,231 | 7,680 | 6,671 | 5,360 | 6,368 |
| 20 University of Rochester | 10,730 | 11,453 | 9,672 | 7,815 | 8,914 | 9,142 | 8,520 | 5,372 |
| Total, 1st 20 insts. | 327,039 | 318,983 | 295,946 | 301,037 | 221,491 | 214,311 | 207,943 | 207,040 |
| 21 N C State Univ at Raleigh | 10,588 | 10,364 | 9,858 | 4,351E | 4,568 | 4,747 | 5,414 | 2,510 |
| 22 Univ. Of Tennessee System | 10,469 | 16,347 | 13,873 | 16,426 | 1,980 | 2,693 | 2,441 | 2,143 |
| 23 Georgia Institute of Tech | 10,100 | 11,977 | 8,152 | 6,317 | 5,696 | 6,723 | 4,864 | 3,314 |
| 24 Univ of MD College Park | 9,758 | 9,648 | 8,959 | 9,435 | 4,255 | 3,576 | 4,276 | 5,261 |
| 25 University of Miami | 9,738 | 4,842 | 5,517 | 4,787 | 6,225 | 3,263 | 3,790 | 3,985 |
| 26 Univ of Cal Los Angeles | 9,671 | 7,995 | 6,589 | 8,373 | 3,820 | 3,240 | 4,147 | 3,693 |
| 27 University of Georgia | 9,656 | 8,819 | 6,593E | 6,593 | 2,699 | 2,331 | 2,776E | 3,776 |
| 28 University of Florida | 9,622 | 9,753 | 7,044 | 9,094 | 5,059 | 5,022 | 2,862 | 5,216 |
| 29 Univ of Southern Cal | 9,522 | 9,879 | 10,556 | 12,177 | 7,795 | 8,346 | 8,925 | 11,165 |
| 30 University of Chicago | 9,067 | 8,929 | 7,465 | 6,649 | 7,937 | 7,932 | 6,315 | 5,889E |
| Total, 1st 30 insts. | 425,270 | 417,536 | 380,552 | 385,239 | 273,525 | 264,784 | 253,753 | 253,992 |
| 31 Washington University | 8,921 | 7,523 | 6,883 | 5,302 | 6,108 | 5,614 | 5,199 | 4,136 |
| 32 Northwestern University | 8,919 | 8,445 | 7,521 | 6,118 | 4,114 | 4,001 | 3,597 | 2,965 |
| 33 Duke University | 8,598 | 8,451 | 7,148 | 5,144 | 5,624 | 6,062 | 5,163 | 3,942 |
| 34 Baylor Col of Medicine | 8,451 | 11,511 | 7,053 | 5,055 | 3,964 | 5,924 | 4,493 | 2,668 |
| 35 Carnegie Mellon Univ | 8,358 | 8,027 | 10,006 | 11,979 | 5,913 | 5,953 | 7,930 | 9,608 |
| 36 Univ. of Colorado | 8,336 | 8,079 | 7,802 | 6,178 | 6,380 | 6,614 | 6,214 | 5,086 |
| 37 University of Iowa | 8,033 | 8,772 | 8,001 | 6,613 | 3,974 | 4,904 | 3,319 | 3,605 |
| 38 Purdue University | 7,690 | 9,112 | 5,505 | 7,765 | 4,870 | 6,211 | 7,059 | 3,748 |
| 39 University of Utah | 7,398 | 5,489 | 5,838 | 5,073 | 3,245 | 3,746 | 4,518 | 3,877 |
| 40 SUNY at Stony Brook | 7,366 | 5,426 | 5,733 | 3,764 | 6,335 | 4,427 | 4,952 | 3,151 |
| Total, 1st 40 insts. | 507,340 | 498,371 | 456,042 | 448,230 | 324,052 | 318,240 | 306,197 | 298,778 |
| 41 Univ of South Florida | 7,360 | 5,205 | 1,106 | 1,001 | 3,735 | 2,847 | 757 | 602 |
| 42 Harvard University | 7,291 | 11,385 | 10,072 | 8,546 | 5,575 | 9,354 | 7,855 | 7,059 |
| 43 Arizona State University | 7,207 | 5,240 | 4,487 | 5,445 | 1,920 | 3,057 | 1,876 | 2,161 |
| 44 Univ of NC at Chapel Hill | 7,192 | 7,901 | 7,062 | 5,762 | 4,254 | 4,774 | 4,402 | 3,417 |
| 45 Univ of Cal San Francisco | 7,032 | 7,677 | 6,376 | 6,675 | 4,724 | 5,107 | 3,776 | 4,192 |
| 46 Ohio State University | 6,849 | 6,693 | 9,199 | 7,035 | 3,020 | 3,064 | 3,695 | 2,552 |
| 47 Univ of Cal Berkeley | 6,562 | 7,077 | 7,167 | 5,964 | 4,728 | 5,721 | 6,094 | 4,695 |
| 48 Univ of Massachusetts | 6,427 | 6,976 | 8,008 | 5,841 | 2,948 | 3,931 | 4,821 | 3,651 |
| 49 Rutgers the St Univ of NJ | 6,423 | 7,850 | 9,583 | 8,575 | 1,665 | 1,642 | 1,437 | 1,560 |
| 50 University of Pittsburgh | 6,309 | 5,202 | 5,377 | 5,081 | 4,822 | 3,947 | 3,918 | 3,987 |
| Total, 1st 50 insts. | 575,992 | 569,577 | 524,479 | 508,155 | 361,443 | 361,684 | 344,828 | 332,654 |

See explanatory information, if any, and SOURCE(S) at end of table.

Table B-69. Total and federally financed current-fund expenditures for research equipment at universities and colleges: fiscal years 1987-90

(Dollars in thousands)

Page 2 of 2

| Institution ranking | Total | | | | Federally financed | | | |
|------------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| 51 Oregon State University | 6,284 | 4,159 | 3,900 | 2,491 | 5,287 | 2,808 | 2,733 | 1,962 |
| 52 Princeton University | 6,184 | 6,040 | 7,036 | 7,585 | 4,875 | 5,110 | 5,435 | 6,347 |
| 53 Iowa St U of Sci & Tech | 5,933 | 4,092 | 4,468 | 3,965 | 2,737 | 2,091 | 2,790 | 2,450 |
| 54 Univ of Cal Davis | 5,904 | 5,465 | 4,662 | 3,626 | 3,084 | 3,268 | 3,860 | 2,031 |
| 55 Indiana University | 5,789 | 6,115 | 6,364 | 5,956 | 3,934 | 4,908 | 5,279 | 4,674 |
| 56 Univ of Ill Chicago | 5,773 | 6,287 | 6,126 | 5,171 | 3,031 | 2,973 | 3,300 | 2,473 |
| 57 UT SW Medical Ctr-Dallas | 5,772 | 5,153 | 3,961 | 4,614 | 2,283 | 1,893 | 1,238 | 2,709 |
| 58 Rensselaer Polytech Inst | 5,728 | 3,717 | 4,968 | 2,905 | 3,424 | 2,061 | 1,829 | 1,640 |
| 59 West Virginia University | 5,727 | 3,313 | 2,344 | 1,472 | 2,555 | 1,075 | 1,234 | 632 |
| 60 VA Polytech Inst & St U | 5,624 | 5,727 | 3,865 | 3,977 | 1,986 | 2,088 | 1,549 | 1,692 |
| Total, 1st 60 insts. | 634,710 | 619,645 | 571,273 | 549,917 | 394,639 | 389,959 | 373,648 | 359,264 |
| 61 Univ of Nebraska-Lincoln | 5,586 | 5,114 | 3,316 | 2,734 | 1,209 | 1,082 | 1,409 | 1,400 |
| 62 Univ of South Carolina | 5,563 | 3,350 | 4,674 | 2,151 | 2,514 | 1,322 | 1,341 | 1,114 |
| 63 Michigan State University | 5,543 | 6,205 | 6,685 | 5,930 | 4,267 | 4,570 | 4,926 | 4,474 |
| 64 Emory University | 5,372 | 5,257 | 4,409 | 3,953 | 3,805 | 3,251 | 4,271 | 2,744 |
| 65 University of Virginia | 5,218 | 3,487 | 3,648 | 3,758 | 3,630 | 3,995 | 4,649 | 2,555 |
| 66 Univ Alabama Birmingham | 5,184 | 3,474 | 3,569 | 3,164 | 3,173 | 3,275 | 2,968 | 3,217 |
| 67 SUNY at Buffalo | 5,081 | 6,225 | 3,948 | 3,365 | 3,295 | 3,324 | 3,038 | 2,661 |
| 68 Florida State University | 5,053 | 4,782 | 3,065 | 3,148 | 2,658 | 2,165 | 1,890 | 1,557 |
| 69 Vanderbilt University | 5,017 | 4,855 | 4,522 | 3,302 | 4,542 | 4,526 | 2,957 | 2,160 |
| 70 Clemson University | 4,999 | 4,962 | 3,172 | 3,267 | 680 | 741 | 811 | 1,046 |
| Total, 1st 70 insts. | 687,326 | 671,356 | 617,281 | 587,689 | 423,112 | 418,210 | 402,108 | 382,192 |
| 71 Colorado State University | 4,967 | 5,724 | 5,804 | 2,971 | 4,257 | 4,896 | 5,177 | 2,615 |
| 72 Brown University | 4,883 | 2,905 | 4,234 | 3,864 | 3,905 | 2,439 | 3,351 | 3,420 |
| 73 Wayne State University | 4,828 | 7,161 | 5,831 | 4,018 | 892 | 2,004 | 1,731 | 1,061 |
| 74 Auburn University | 4,782 | 4,333 | 5,976 | 4,640 | 1,141 | 1,214 | 2,265 | 1,724 |
| 75 Woods Hole Ocnographic Inst | 4,734 | 8,067 | 5,800 | 3,121 | 4,219 | 7,714 | 4,200 | 2,821 |
| 76 University of Cincinnati | 4,706 | 4,433 | 3,414 | 3,045 | 2,713 | 2,668 | 1,913 | 2,635 |
| 77 Univ of MD Balt Prof Sch | 4,654 | 6,022 | 4,094 | 4,2781 | 1,274 | 1,722 | 1,754 | 2,3261 |
| 78 U of Houston | 4,640 | 4,523 | 3,154 | 1,564 | 2,088 | 2,444 | 1,864 | 1,152 |
| 79 Syracuse University | 4,626 | 3,149 | 5,294 | 3,536 | 2,469 | 1,648 | 5,619 | 2,092 |
| 80 Univ of Missouri Columbia | 4,489 | 4,786 | 5,763 | 3,368 | 683 | 1,341 | 831 | 762 |
| Total, 1st 80 insts. | 734,635 | 722,459 | 668,245 | 622,094 | 446,753 | 446,300 | 430,813 | 402,800 |
| 81 Oklahoma State University | 4,432 | 3,877 | 4,595 | 2,365 | 2,262 | 1,519 | 2,197 | 998 |
| 82 Univ of Central Florida | 4,415 | 2,793 | 545 | 2,4441 | 1,284 | 1,105 | 1,192 | 1251 |
| 83 SUNY Hlth Sci Ctr - Syrcs | 4,374 | 3,085 | 1,933 | 1,271 | 613 | 679 | 643 | 542 |
| 84 Case Western Reserve Univ | 4,3701 | 4,1341 | 4,137 | 4,546 | 3,3001 | 3,2931 | 3,297 | 1,865 |
| 85 Univ of Cal Santa Barbara | 4,314 | 2,829 | 2,752 | 2,775 | 3,757 | 2,317 | 2,389 | 2,468 |
| 86 University of Connecticut | 4,293 | 5,830 | 4,289 | 4,167 | 1,647 | 3,006 | 2,708 | 2,441 |
| 87 Yeshiva University | 4,161 | 4,569 | 3,905 | 1,683 | 3,265 | 1,817 | 2,475 | 1,575 |
| 88 University of Oklahoma | 4,150 | 4,207 | 4,664 | 4,215 | 1,110 | 1,361 | 1,478 | 1,951 |
| 89 Univ of Cal Irvine | 4,116 | 3,396 | 2,684 | 2,361 | 3,131 | 2,539 | 2,285 | 1,877 |
| 90 CUNY Mt Sinai Sch of Med | 4,019 | 2,722 | 1,073 | 1,143 | 3,439 | 1,938 | 756 | 803 |
| Total, 1st 90 insts. | 777,279 | 759,901 | 698,822 | 647,064 | 470,561 | 465,874 | 449,233 | 417,445 |
| 91 Rockefeller University | 3,949 | 3,820 | 3,332 | 3,469 | 1,817 | 1,758 | 1,533 | 1,596 |
| 92 Tulane University | 3,796 | 3,480 | 5,491 | 6,649 | 1,881 | 850 | 2,215 | 3,645E |
| 93 New York University | 3,726 | 3,485 | 3,689 | 5,471 | 2,815 | 2,842 | 3,051 | 3,489 |
| 94 Boston University | 3,593 | 2,588 | 2,577 | 2,582 | 2,777 | 2,200 | 2,106 | 2,275 |
| 95 University of Delaware | 3,424 | 3,612 | 2,958 | 3,738 | 1,276 | 1,855 | 1,142 | 1,700 |
| 96 University of Kansas | 3,420 | 2,916 | 2,984 | 3,504 | 1,264 | 1,240 | 1,431 | 1,936 |
| 97 Texas Tech University | 3,408 | 2,050 | 2,415 | 2,675 | 376 | 1,164 | 865 | 1,101 |
| 98 US Naval Postgrad School | 3,369 | 3,776 | 4,638 | 2,047 | 3,352 | 3,750 | 4,638 | 2,026 |
| 99 San Diego State Univ | 3,170 | 2,279 | 2,609 | 2,055 | 1,060 | 638 | 737 | 690 |
| 100 University of New Mexico | 3,126 | 4,728 | 3,840 | 4,522 | 1,476 | 2,837 | 2,040 | 2,633 |
| Total, 1st 100 insts. | 812,260 | 794,635 | 733,355 | 683,776 | 488,855 | 485,008 | 468,991 | 438,536 |
| Total, all other sampled insts. | 187,594 | 186,449 | 185,564 | 161,907 | 101,896 | 101,649 | 106,726 | 87,226 |
| Estimated total non-sampled insts. | 13,813 | 13,111 | 0 | 0 | 4,403 | 5,168 | 0 | 0 |

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential
E = Estimated
I = Imputed
NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-70. R&D expenditures at university-administered federally funded research and development centers, by character of work: fiscal years 1953-90

(Dollars in millions)

| Fiscal year | Total | Character of work | | | |
|---------------|-------|-------------------|------------------|----------------------------------|------------------|
| | | Basic research | | Applied research and development | |
| | | Amount | Percent of total | Amount | Percent of total |
| 1953 | 121 | 33 | 27.3% | 88 | 72.7% |
| 1954 | 141 | 39 | 27.7 | 102 | 72.3 |
| 1955 | 180 | 49 | 27.2 | 131 | 72.8 |
| 1956 | 194 | 51 | 26.3 | 143 | 73.7 |
| 1957 | 240 | 65 | 27.1 | 175 | 72.9 |
| 1958 | 293 | 78 | 26.6 | 215 | 73.4 |
| 1959 | 338 | 92 | 27.2 | 246 | 72.8 |
| 1960 | 360 | 97 | 26.9 | 263 | 73.1 |
| 1961 | 410 | 115 | 28.0 | 295 | 72.0 |
| 1962 | 470 | 136 | 28.9 | 334 | 71.1 |
| 1963 | 530 | 159 | 30.0 | 371 | 70.0 |
| 1964 | 629 | 191 | 30.4 | 438 | 69.6 |
| 1965 | 629 | 208 | 33.1 | 421 | 66.9 |
| 1966 | 630 | 227 | 36.0 | 403 | 64.0 |
| 1967 | 673 | 250 | 37.1 | 423 | 62.9 |
| 1968 | 719 | 276 | 38.4 | 443 | 61.6 |
| 1969 | 725 | 275 | 37.9 | 450 | 62.1 |
| 1970 | 737 | 269 | 36.5 | 468 | 63.5 |
| 1971 | 716 | 260 | 36.3 | 456 | 63.7 |
| 1972 | 753 | 244 | 32.4 | 509 | 67.6 |
| 1973 | 817 | 296 | 36.2 | 521 | 63.8 |
| 1974 | 865 | 390 | 45.1 | 475 | 54.9 |
| 1975 | 987 | 439 | 44.5 | 548 | 55.5 |
| 1976 | 1,147 | 512 | 44.6 | 635 | 55.4 |
| 1977 | 1,384 | 600 | 43.4 | 784 | 56.6 |
| 1978 1/ | 1,717 | NA | NA | NA | NA |
| 1979 | 1,935 | 1,015 | 52.5 | 919 | 47.5 |
| 1980 | 2,246 | 1,124 | 50.0 | 1,122 | 50.0 |
| 1981 | 2,486 | 1,261 | 50.7 | 1,225 | 49.3 |
| 1982 | 2,479 | 1,317 | 53.1 | 1,161 | 46.8 |
| 1983 | 2,737 | 1,472 | 53.8 | 1,264 | 46.2 |
| 1984 | 3,150 | 1,675 | 53.2 | 1,475 | 46.8 |
| 1985 | 3,523 | 1,749 | 49.6 | 1,774 | 50.4 |
| 1986 | 3,895 | 1,859 | 47.7 | 2,036 | 52.3 |
| 1987 | 4,206 | 2,012 | 47.8 | 2,194 | 52.2 |
| 1988 | 4,531 | 2,222 | 49.0 | 2,308 | 50.9 |
| 1989 | 4,729 | 2,329 | 49.2 | 2,399 | 50.7 |
| 1990 | 4,831 | 2,402 | 49.7 | 2,429 | 50.3 |

1/ Data were not collected in fiscal year 1978.

NOTE: NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-71. R&D expenditures at university-administered federally funded research and development centers, by science and engineering field: fiscal years 1983-90

(Dollars in thousands)

| Field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 2,736,652 | 3,150,380 | 3,523,092 | 3,894,806 | 4,206,084 | 4,530,562 | 4,728,642 | 4,831,003 |
| Engineering, total | 944,952 | 1,097,444 | 1,296,043 | 1,445,252 | 1,547,061 | 1,614,250 | 1,642,799 | 1,708,134 |
| Aeronautical and astronautical | 69,057 | 86,022 | 107,065 | 126,566 | 132,238 | 146,894 | 145,035 | 143,643 |
| Chemical | 45,832 | 39,230 | 40,082 | 40,048 | 41,884 | 43,964 | 40,162 | 40,754 |
| Civil | 13,378 | 13,596 | 15,597 | 16,014 | 17,568 | 17,500 | 16,439 | 15,083 |
| Electrical | 316,652 | 390,967 | 454,233 | 514,263 | 550,430 | 555,635 | 568,626 | 604,894 |
| Mechanical | 339,573 | 396,962 | 489,469 | 540,103 | 570,698 | 602,857 | 628,057 | 627,262 |
| Metallurgical and materials 1/ | NA | NA | NA | NA | NA | NA | NA | 3,481 |
| Other, n.e.c. | 160,460 | 170,667 | 189,597 | 208,258 | 234,243 | 247,400 | 244,480 | 273,017 |
| All sciences, total | 1,791,700 | 2,052,936 | 2,227,049 | 2,449,554 | 2,659,023 | 2,916,312 | 3,085,843 | 3,122,869 |
| Physical sciences | 1,192,067 | 1,369,108 | 1,448,808 | 1,540,627 | 1,660,404 | 1,717,181 | 1,827,344 | 1,823,680 |
| Astronomy | 69,108 | 77,683 | 73,330 | 79,047 | 82,360 | 117,658 | 112,493 | 112,239 |
| Chemistry | 200,505 | 221,002 | 226,440 | 246,911 | 261,267 | 274,647 | 274,359 | 261,048 |
| Physics | 885,500 | 1,023,210 | 1,097,949 | 1,159,738 | 1,257,808 | 1,263,616 | 1,377,045 | 1,381,640 |
| Other, n.e.c. | 36,954 | 47,213 | 51,089 | 54,931 | 58,969 | 61,260 | 63,447 | 68,753 |
| Environmental sciences | 159,032 | 175,152 | 200,074 | 232,606 | 257,800 | 289,352 | 298,529 | 292,045 |
| Atmospheric | 61,139 | 66,604 | 83,498 | 99,017 | 103,504 | 91,069 | 98,594 | 103,239 |
| Earth sciences | 37,795 | 42,913 | 46,552 | 50,361 | 76,276 | 80,190 | 65,212 | 64,894 |
| Oceanography | 13,068 | 15,196 | 16,056 | 19,489 | 2,032 | 1,764 | 1,916 | 1,664 |
| Other, n.e.c. | 47,030 | 50,439 | 53,968 | 63,739 | 75,988 | 116,329 | 132,807 | 122,248 |
| Mathematical sciences | 65,340 | 81,376 | 92,858 | 109,102 | 121,793 | 126,084 | 162,247 | 176,839 |
| Computer sciences | 224,274 | 266,268 | 338,116 | 427,297 | 472,766 | 621,744 | 634,509 | 644,489 |
| Life sciences | 104,484 | 106,313 | 110,905 | 107,506 | 115,416 | 123,508 | 130,556 | 142,394 |
| Agricultural sciences .. | 1,008 | 639 | 633 | 663 | 684 | 1,397 | 1,175 | 1,017 |
| Biological sciences | 76,437 | 80,730 | 82,057 | 85,195 | 87,202 | 91,712 | 101,287 | 112,559 |
| Medical sciences | 9,555 | 11,093 | 10,729 | 8,572 | 10,570 | 12,996 | 10,114 | 10,345 |
| Other, n.e.c. | 17,484 | 13,851 | 17,486 | 13,076 | 16,960 | 17,403 | 17,980 | 18,473 |
| Psychology | 194 | 240 | 264 | 294 | 899 | 973 | 947 | 1,010 |
| Social sciences | 21,067 | 18,056 | 17,591 | 19,343 | 21,421 | 27,868 | 23,291 | 29,744 |
| Economics | 4,254 | 3,590 | 4,401 | 4,043 | 2,554 | 1,477 | 491 | 632 |
| Political science | 3,955 | 3,319 | 4,018 | 4,994 | 4,563 | 5,843 | 3,858 | 6,459 |
| Sociology | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other, n.e.c. | 12,858 | 11,147 | 9,152 | 10,306 | 14,304 | 20,548 | 18,942 | 22,653 |
| Other sciences, n.e.c. | 25,242 | 36,423 | 18,433 | 12,779 | 8,524 | 9,602 | 8,420 | 12,668 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-72. Federally financed R&D expenditures at university-administered federally funded research and development centers, by science and engineering field: fiscal years 1983-90

[Dollars in thousands]

| Field | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total | 2,697,078 | 3,106,166 | 3,476,699 | 3,862,913 | 4,174,718 | 4,498,909 | 4,691,232 | 4,790,549 |
| Engineering, total | 932,483 | 1,084,877 | 1,284,767 | 1,435,137 | 1,539,481 | 1,607,422 | 1,633,585 | 1,699,499 |
| Aeronautical and astronautical | 68,958 | 85,892 | 106,959 | 126,481 | 132,169 | 146,813 | 144,910 | 143,495 |
| Chemical | 45,197 | 38,649 | 39,463 | 39,364 | 41,378 | 43,427 | 39,534 | 40,218 |
| Civil | 13,112 | 13,370 | 15,369 | 15,815 | 17,415 | 17,335 | 16,238 | 14,892 |
| Electrical | 313,091 | 386,868 | 450,988 | 511,852 | 548,560 | 554,139 | 566,345 | 602,489 |
| Mechanical | 333,976 | 391,728 | 485,027 | 536,435 | 567,922 | 600,584 | 624,909 | 624,402 |
| Metallurgical and materials 1/..... | NA | NA | NA | NA | NA | NA | NA | 3,481 |
| Other, n.e.c. | 158,149 | 168,370 | 186,961 | 205,190 | 232,037 | 245,124 | 241,649 | 270,522 |
| All sciences, total | 1,764,595 | 2,021,289 | 2,191,932 | 2,427,776 | 2,635,237 | 2,891,487 | 3,057,647 | 3,091,050 |
| Physical sciences | 1,177,622 | 1,354,583 | 1,433,957 | 1,529,586 | 1,649,404 | 1,707,217 | 1,812,146 | 1,804,746 |
| Astronomy | 68,875 | 75,756 | 71,401 | 77,127 | 80,418 | 115,601 | 110,724 | 110,708 |
| Chemistry | 196,988 | 218,232 | 223,816 | 244,779 | 259,457 | 272,970 | 271,891 | 258,730 |
| Physics | 875,316 | 1,014,218 | 1,088,499 | 1,153,577 | 1,251,388 | 1,258,268 | 1,367,561 | 1,369,345 |
| Other, n.e.c. | 36,443 | 46,377 | 50,241 | 54,103 | 58,141 | 60,378 | 61,970 | 65,955 |
| Environmental sciences | 151,638 | 167,137 | 188,653 | 229,989 | 254,889 | 286,106 | 294,192 | 288,489 |
| Atmospheric | 55,459 | 60,218 | 73,684 | 98,069 | 102,269 | 89,620 | 96,625 | 101,226 |
| Earth sciences | 37,039 | 42,126 | 45,883 | 49,815 | 75,782 | 79,720 | 64,938 | 64,418 |
| Oceanography | 13,068 | 15,196 | 16,056 | 19,489 | 2,032 | 1,764 | 1,916 | 1,664 |
| Other, n.e.c. | 46,072 | 49,597 | 53,030 | 62,616 | 74,806 | 115,002 | 130,713 | 121,181 |
| Mathematical sciences | 64,174 | 80,092 | 91,770 | 108,196 | 121,075 | 125,434 | 160,792 | 174,988 |
| Computer sciences | 223,227 | 265,041 | 337,117 | 426,508 | 472,142 | 621,172 | 634,059 | 644,134 |
| Life sciences | 102,468 | 104,582 | 108,862 | 105,540 | 111,233 | 117,451 | 126,607 | 136,719 |
| Agricultural sciences .. | 1,008 | 639 | 633 | 663 | 684 | 1,397 | 1,175 | 1,017 |
| Biological sciences | 74,924 | 79,327 | 80,430 | 83,955 | 85,767 | 90,372 | 97,639 | 107,206 |
| Medical sciences | 9,471 | 11,023 | 10,583 | 8,006 | 7,973 | 8,451 | 10,061 | 10,304 |
| Other, n.e.c. | 17,065 | 13,593 | 17,216 | 12,916 | 16,809 | 17,231 | 17,732 | 18,192 |
| Psychology | 194 | 240 | 264 | 294 | 899 | 973 | 947 | 1,010 |
| Social sciences | 20,196 | 17,018 | 16,751 | 18,661 | 20,890 | 27,551 | 22,942 | 29,231 |
| Economics | 3,786 | 2,836 | 3,773 | 3,563 | 2,195 | 1,441 | 491 | 632 |
| Political science | 3,880 | 3,268 | 3,979 | 4,930 | 4,523 | 5,781 | 3,799 | 6,346 |
| Sociology | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other, n.e.c. | 12,530 | 10,914 | 8,999 | 10,168 | 14,172 | 20,329 | 18,652 | 22,253 |
| Other sciences, n.e.c. | 25,076 | 32,596 | 14,558 | 9,002 | 4,705 | 5,583 | 5,962 | 11,733 |

1/ Data for metallurgical and materials engineering were not collected separately prior to fiscal year 1990.

NOTES: NA = Not available
n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges

Table B-73. R&D expenditures at university-administered federally funded research and development centers, by science/engineering field: fiscal year 1990

[Dollars in thousands]

| Institution ranking | Total | Engi- neering | Physical sciences | Environ- mental sciences | Math & computer sciences | Life sciences | Psy- chology | Social sciences | Other sciences |
|-------------------------------|-----------|------------------|----------------------|--------------------------------|--------------------------------|------------------|-----------------|--------------------|-------------------|
| Total, all institutions | 4,831,003 | 1,708,134 | 1,823,680 | 292,045 | 821,328 | 142,394 | 1,010 | 29,744 | 12,668 |
| 1 Jet Propulsion Laboratory | 1,065,848 | 401,134 | 76,135 | 89,308 | 499,271 | 0 | 0 | 0 | 0 |
| 2 Lawrence Livermore Lab | 1,019,920 | 487,515 | 315,533 | 33,292 | 152,678 | 30,902 | 0 | 0 | 0 |
| 3 Los Alamos National Lab | 926,006 | 316,353 | 443,131 | 6,359 | 91,806 | 32,986 | 0 | 29,012 | 6,359 |
| 4 Lincoln Laboratory | 419,093 | 295,419 | 79,879 | 0 | 43,418 | 0 | 377 | 0 | 0 |
| 5 Argonne Natl Laboratory | 347,660 | 163,129 | 90,082 | 75,540 | 4,981 | 13,928 | 0 | 0 | 0 |
| 6 Brookhaven Nat'l Lab 1/ | 263,931 | 38,793 | 193,744 | 8,737 | 589 | 21,339 | 0 | 548 | 181 |
| 7 Lawrence Berkeley Lab | 196,059 | 1,143 | 139,489 | 10,978 | 1,898 | 36,423 | 0 | 0 | 6,128 |
| 8 Fermi Nat Accelerat Lab 2/ | 184,608 | 0 | 184,608 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 Stfrd Linear Accelertr Ctr | 115,160 | 0 | 115,160 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 Plasma Physics Laboratory | 95,267 | 0 | 95,267 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total, 1st 10 insts. | 4,633,552 | 1,703,486 | 1,733,028 | 224,214 | 794,641 | 135,578 | 377 | 29,560 | 12,668 |
| 11 Natl Ctr Atmospheric Rs 3/ | 66,234 | 0 | 0 | 66,234 | 0 | 0 | 0 | 0 | 0 |
| 12 Nat Opt Astro Obs 4/ | 26,035 | 0 | 26,035 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 Software Engineering Inst | 24,294 | 0 | 0 | 0 | 24,294 | 0 | 0 | 0 | 0 |
| 14 Ames Laboratory | 23,275 | 4,648 | 17,704 | 0 | 923 | 0 | 0 | 0 | 0 |
| 15 Continuous Elec Beam Accl | 21,552 | 0 | 19,882 | 0 | 1,470 | 0 | 0 | 0 | 0 |
| 16 Nat'l Radio Astron Obs 1/ | 19,836 | 0 | 19,836 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 Oak Ridge Associated U 5/ | 8,503 | 0 | 870 | 0 | 0 | 6,816 | 633 | 184 | 0 |
| 18 Nat'l Astron & Ionos Ctr | 7,922 | 0 | 6,325 | 1,597 | 0 | 0 | 0 | 0 | 0 |
| Total, 1st 18 insts. | 4,831,003 | 1,708,134 | 1,823,680 | 292,045 | 821,328 | 142,394 | 1,010 | 29,744 | 12,668 |

1/ Associated Universities, Inc.

2/ Universities Research Association.

3/ University Corporation for Atmospheric Research.

4/ Association of Universities for Research in Astronomy, Inc.

5/ Oak Ridge Associated Universities.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential

E = Estimated

I = Imputed

NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Table B-74. Total and federally financed R&D expenditures at university-administered federally funded research and development centers: fiscal years 1987-90

(Dollars in thousands)

| Institution ranking | Total | | | | Federally financed | | | |
|---------------------------------|-----------|-----------|-----------|-----------|--------------------|-----------|-----------|-----------|
| | 1990 | 1989 | 1988 | 1987 | 1990 | 1989 | 1988 | 1987 |
| Total, all institutions | 4,831,003 | 4,728,642 | 4,530,562 | 4,206,084 | 4,790,549 | 4,691,232 | 4,498,909 | 4,174,718 |
| 1 Jet Propulsion Laboratory | 1,065,848 | 1,078,776 | 1,059,250 | 915,527 | 1,065,848 | 1,078,776 | 1,059,250 | 915,527 |
| 2 Lawrence Livermore Lab | 1,019,920 | 1,004,600 | 939,100 | 914,800 | 1,016,940 | 1,001,518 | 936,996 | 910,603 |
| 3 Los Alamos National Lab | 926,006 | 902,361 | 882,431 | 835,306 | 909,628 | 888,534 | 872,906 | 827,280 |
| 4 Lincoln Laboratory | 419,093 | 364,086 | 386,237 | 353,716 | 419,093 | 364,086 | 386,237 | 353,716 |
| 5 Argonne Natl Laboratory | 347,660 | 343,280 | 303,273 | 276,605 | 341,757 | 335,512 | 297,786 | 271,112 |
| 6 Brookhaven Nat'l Lab 1/ | 263,931 | 255,206 | 234,206 | 220,529 | 263,931 | 255,206 | 234,206 | 220,529 |
| 7 Lawrence Berkeley Lab | 196,059 | 193,183 | 183,223 | 174,450 | 185,009 | 184,338 | 176,031 | 167,602E |
| 8 Fermi Nat Accelerat Lab 2/ | 184,608 | 185,069 | 173,233 | 167,088 | 184,608 | 185,069 | 168,703 | 164,503 |
| 9 Stfrd Linear Accelertr Ctr | 115,160 | 108,710 | 98,034 | 89,022 | 115,160 | 108,710 | 98,034 | 89,022 |
| 10 Plasma Physics Laboratory | 95,267 | 112,557 | 103,483 | 107,184 | 94,909 | 112,158 | 103,080 | 106,107 |
| Total, 1st 10 insts. | 4,633,552 | 4,547,828 | 4,362,470 | 4,054,227 | 4,596,883 | 4,513,907 | 4,333,229 | 4,026,001 |
| 11 Natl Ctr Atmospheric Rs 3/ | 66,234 | 63,317 | 58,216 | 52,307 | 64,296 | 61,481 | 56,850 | 51,158 |
| 12 Nat Opt Astro Obs 4/ | 26,035 | 27,599 | 24,925 | 25,632 | 26,035 | 27,599 | 24,925 | 25,632 |
| 13 Software Engineering Inst | 24,294 | 20,900 | 19,310 | 13,755 | 24,294 | 20,900 | 19,310 | 13,755 |
| 14 Ames Laboratory | 23,275 | 21,769 | 21,201 | 19,213 | 23,275 | 21,769 | 21,201 | 19,213 |
| 15 Continuous Elec Beam Acclr | 21,352 | 13,228 | 12,464 | NA | 20,331 | 12,202 | 11,595 | NA |
| 16 Nat'l Radio Astron Obs 1/ | 19,836 | 18,492 | 16,184 | 16,974 | 19,836 | 18,492 | 16,184 | 16,974 |
| 17 Oak Ridge Associated U 5/ | 8,503 | 7,781 | 8,406 | 8,680 | 7,754 | 7,176 | 8,229 | 8,092 |
| 18 Nat'l Astron & Ionos Ctr | 7,922 | 7,728 | 7,386 | 7,531 | 7,845 | 7,706 | 7,386 | 7,531 |
| Total, 1st 18 insts. | 4,831,003 | 4,728,642 | 4,530,562 | 4,198,319 | 4,790,549 | 4,691,232 | 4,498,909 | 4,168,356 |
| Total, all other sampled insts. | 0 | 0 | 0 | 7,765 | 0 | 0 | 0 | 6,362 |

1/ Associated Universities, Inc.

2/ Universities Research Association.

3/ University Corporation for Atmospheric Research.

4/ Association of Universities for Research in Astronomy, Inc.

5/ Oak Ridge Associated Universities.

NOTES: A number of institutions have developed, or are in the process of developing, new computer systems and methodologies that enable them to report more accurately the total cost of science and engineering research; therefore, fiscal year 1990 comparisons with data reported in earlier years may be inappropriate in some areas.

C = Confidential

E = Estimated

I = Imputed

NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Scientific and Engineering Expenditures at Universities and Colleges.

Section C.

University-Administered Federally Funded Research and Development Centers: FY 1990

Department of Defense

Lincoln Laboratory (Massachusetts Institute of Technology)
Software Engineering Institute (Carnegie Mellon University)

Department of Energy

Ames Laboratory (Iowa State University of Science and Technology)
Argonne National Laboratory (University of Chicago and Argonne Universities Association)
Brookhaven National Laboratory (Associated Universities, Inc.)
Continuous Electron Beam Accelerator Facility (Southeastern Universities Research Association)
E. O. Lawrence Berkeley Laboratory (University of California)
E. O. Lawrence Livermore Laboratory (University of California)
Fermi National Accelerator Laboratory (Universities Research Association)
Los Alamos Scientific Laboratory (University of California)
Oak Ridge Institute of Nuclear Studies (Oak Ridge Associated Universities)
Plasma Physics Laboratory (Princeton University)
Stanford Linear Accelerator Center (Stanford University)

National Aeronautics and Space Administration

Jet Propulsion Laboratory (California Institute of Technology)

National Science Foundation

National Astronomy and Ionosphere Center (Cornell University)
National Center for Atmospheric Research (University Corporation for Atmospheric Research)
National Optical Astronomy Observatory (Association of Universities for Research in Astronomy, Inc.)
National Radio Astronomy Observatory (Associated Universities, Inc.)

Section D. Survey Instruments

| | Page |
|---------------------------------|------|
| Cover Letter | 182 |
| Survey Form and Crosswalk | 184 |

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

Dear Colleague:

The National Science Foundation (NSF) requests your participation in the annual Survey of Scientific and Engineering (S/E) Expenditures at Universities and Colleges, Fiscal Year 1990. This national effort, one of a series that covers S/E resources at academic institutions, collects data on current fund expenditures for separately budgeted research and development by S/E field and source of funds, and current fund expenditures for related research equipment.

The survey data are solicited under the authority of the National Science Foundation Act of 1950, as amended, and are for statistical use only. These data are used by Congress, other Federal and State governmental planners, and the academic sector to assess the adequacy of the nation's research base. By contributing timely and accurate information to this survey, you can ensure that your institution is represented in data used by these decision-makers. You may also find the data useful to your own institution for internal and/or peer analyses.

The survey results are representative of the national population of institutions that grant graduate S/E degrees and/or annually expend at least \$50,000 in separately budgeted research and development funds. While participation is voluntary and failure to respond will not have any adverse effect upon your institution, the reliability of the data and therefore the soundness of institutional, State, and national decisions based upon them are in large measure contingent upon receipt of complete and accurate data from all surveyed institutions.

Survey results are distributed as rapidly as possible to maximize the utility of these data. Selected tables are initially made available in *Preview* form on the Science Resources Studies (SRS) Electronic Bulletin Board system, followed by publication in an *Early Release* pamphlet. *Highlights* providing a brief analysis of the survey results in text, tables, and graphs are published next, followed by a detailed report on the survey containing a large number of statistical tables. Survey results are also available on magnetic tape or diskettes (ASCII or Lotus 1-2-3 format) and are entered on the SRS Electronic Bulletin Board for direct access via personal computer.

The survey questionnaire is due on January 7, 1991. This packet contains the following items, several of which are described in greater detail in the subsequent text:

1. *Postcard to notify NSF of package receipt and to request ASQ*
2. *"FYI" flyer describing the NSF academic survey system*
3. *1990 R&D Expenditures Survey Form 411, with instructions and crosswalk*
4. *Facsimile showing data reported on the FY 1987-89 surveys*
5. *Envelope for returning the completed survey form*

POSTCARD

As soon as you receive this survey package, please let us know by filling out and mailing the postcard enclosed, stating the name and telephone number of the person responsible for completing the survey form.

THE 1990 SURVEY FORM 411 WITH INSTRUCTIONS AND NSF/NCES CROSSWALK

Although the 1990 survey form differs from the 1989 form, it incorporates changes requested by participating institutions. There are two significant changes. Item 4 on Capital Expenditures data has been discontinued from the survey. We have added a new sub-field under "Engineering" in Items 2 and 3: *Metallurgical and Materials Engineering*. In addition, we have included the NSF-NCES Crosswalk on the last two pages of the survey instrument. The Crosswalk relates NSF's S/E fields to the codes defined by the Department of Education's National Center for Education Statistics (NCES) in its publication *A Classification of Instructional Programs*. It is provided to aid respondents whose institutional recordkeeping systems are organized according to NCES classifications.

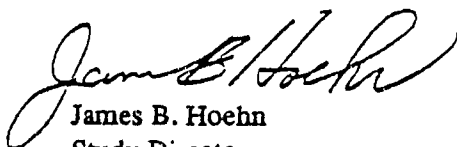
Response burden information that is requested involves estimating the average number of hours required to complete the survey. A survey-form facsimile that shows prior years' data received from your institution or imputed by NSF is enclosed for your information.

AUTOMATED SURVEY QUESTIONNAIRE

An automated survey questionnaire (ASQ) has been developed to provide respondents with the opportunity to edit their data submissions (for both arithmetical and trend errors) prior to sending them to NSF. Requirements for using ASQ include an IBM PC or compatible computer system and DOS 3.0 or a more recent upgrade. *If you would like to receive ASQ (provided on diskette), please use the return postcard to request it.*

If questions arise when completing the survey form or if you wish further information regarding our publications/diskettes, please call Ms. Marge Machen of NSF at (202) 634-4673. Thank you for your efforts in providing timely and meaningful statistics to NSF.

Sincerely,



James B. Hoehn
Study Director
Universities and Colleges Studies Group
Division of Science Resources Studies

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550SURVEY OF SCIENTIFIC AND ENGINEERING EXPENDITURES
AT UNIVERSITIES AND COLLEGES, FY 1990

Organizations are requested to complete and return this form to NSF:

NATIONAL SCIENCE FOUNDATION
1800 G Street N.W., Room L-611
Washington, DC 20550
[fax (202) 634-4683]

This form should be returned by January 7, 1991.
Your cooperation in returning the survey questionnaire promptly is very important.

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provide will be used for statistical purposes only. Your response is entirely voluntary and your failure to provide some or all of the information will in no way adversely affect your institution.

All financial data requested on this form should be reported in thousands of dollars; for example, an expenditure of \$25,342 should be rounded to the nearest thousand dollars and reported as \$25.

Where exact data are not available, estimates are acceptable. Your estimates will be better than ours.

Include data for branches and all organizational units of your institution, such as medical schools and agricultural experiment stations. Data on research centers and facilities administered by your institution should be included. In addition, include hospitals or clinics owned, operated, or controlled by universities, and integrated operationally with the clinical

Date Submitted _____

Please correct if name or address has changed

programs of your medical schools. **Exclude** data for federally funded research and development centers (FFRDCs). Data for these facilities are collected separately. **If you have any questions please contact Marge Machen of NSF at (202) 634-4673.**

Financial data are requested for your institution's 1990 fiscal year.

Please circle the month in which your institution's fiscal year begins:

| | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| JAN | | | | | | | | | | | DEC |

It is estimated that response to this survey will require 19 hours. If you wish to comment on this burden, please contact Herman Fleming at (202) 357-9520.

How many person hours were required to complete this form? _____

Scope:

This survey collects data on expenditures by universities and colleges for separately budgeted research and development (R&D) in science and engineering. Definitions used are compatible with OMB Circular A-21, revised July 23, 1982. Items 1 and 2 ask for *current fund expenditures* by source of funds and by field of science/engineering. Item 3 collects data on that *portion of current fund expenditures* reported in items 1 and 2 that went for the purchase of scientific and engineering research equipment.

Definitions:

1. **Research and Development (R&D).** R&D for purposes of this survey is the same as "organized research" as defined in Section B.1, b. of OMB Circular A-21 (revised). It includes all R&D activities of an institution that are *separately budgeted and accounted for*. R&D includes both "sponsored research" activities (sponsored by Federal and non-Federal agencies and organizations) and "university research" (separately budgeted under an internal application of institutional funds).

a. **Research** is a systematic study directed toward fuller knowledge or understanding of the subject studied. Research is classified as either basic or applied, according to the objectives of the investigator.

b. **Development** is systematic use of the knowledge or understanding gained from research, directed toward the production of useful materials, devices, systems, or methods, including design and development of prototypes and processes.

2. **Current fund expenditures.** Expenditures of funds available for current operations. Such expenditures include all unrestricted gifts and restricted current funds to the extent that such funds were expended for current operating purposes.

| | | | | | |
|--|-------|--------------|-------|-----|------|
| PLEASE TYPE OR PRINT NAME OF PERSON SUBMITTING THIS FORM | TITLE | AREA CODE | EXCH. | NO. | EXT. |
| | | | | | |
| NAME OF PERSON WHO PREPARED THIS SUBMISSION (if different from above) | TITLE | AREA CODE | EXCH. | NO. | EXT. |
| | | | | | |

Instructions for Items 1 and 2

Separately budgeted research and development (R&D) includes all funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. *Include* research equipment purchased under research project awards from "current fund" accounts. Also *include* research funds subcontracted to outside organizations. *Exclude* training grants, public service grants, demonstration projects, and departmental research expenditures that are not separately budgeted. Also, *exclude* any R&D expenditures in the fields of education, law, humanities, music, the arts, physical education, library science, and all other non-scientific fields. Allocate funding to the original sources whenever possible, as specified below. If this information is unknown, report the proximate funding source.

(1) Total

- a. **Federal Government.** Report grants and contracts for R&D (including direct and reimbursed indirect costs) by all agencies of the Federal Government.
- b. **State and local governments.** Include funds for R&D from State, county, municipal, or other local governments and their agencies. Include here State funds which support R&D at agricultural and other experiment stations.
- c. **Industry.** Include all grants and contracts for R&D from profitmaking organizations, whether engaged in production, distribution, research, service, or other activities. Do not include grants and contracts from nonprofit foundations financed by industry; these should be reported under *All other sources* (line 1175).
- d. **Institution funds.** Report funds, including indirect costs, which your institution spent for R&D activities from the following sources: (1) General-purpose State or local government appropriations (i.e., unrestricted funds); (2) general-purpose grants from industry, foundations, or other outside sources; (3) tuition and fees; (4) endowment income. In addition, estimate your institution's contribution to unreimbursed indirect costs incurred in association with R&D projects financed by outside organizations, and mandatory cost sharing on Federal and other grants. To estimate unreimbursed indirect costs, use your **actual** university indirect cost rate (rather than the proposed rate) multiplied by the base (e.g., direct salaries and wages, etc.) minus actual indirect cost recoveries. If your institution now separately budgets what was previously classified as departmental research, include these data in line 1161.
- e. **All other sources.** Include grants for R&D from nonprofit foundations and voluntary health agencies as well as from all other sources not elsewhere classified. Funds from foundations which are affiliated with, or granted solely to your institution, should be included under line 1160, "Institution funds". Funds for R&D received from a health agency that is a unit of a State or local government should be reported under "State and local governments" (line 1125). Also include gifts from individuals that are restricted by the donor to research.

(2) **Basic research.** Distinguish basic from nonbasic (i.e., applied) research, as defined in column (2) below.

Instructions for Item 3

Please report that portion of current fund expenditures reported in items 1 and 2 that went for the purchase of research equipment. This includes all research equipment purchased under sponsored research project awards from current fund accounts.

From column (1) report current fund expenditures for R&D from all sources: Federal Government, State, county, municipal or other governments and their agencies (including State funds supporting R&D at agricultural experiment stations); industry; institution funds; and private foundations and voluntary health agencies, individuals, and associations.

For column (2) include funds from grants and contracts for R&D sponsored by agencies of the Federal Government.

ITEM 1. CURRENT FUND EXPENDITURES FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT IN THE SCIENCES AND ENGINEERING, BY SOURCE OF FUNDS: FY 1990 (Include indirect costs)

| Source of funds | | (1) Total | (2) Basic research |
|--|------|------------------------|---|
| | | (Dollars in thousands) | (Percent of column 1) |
| a. Federal Government | 1110 | \$ | _____ % |
| b. State and local governments | 1125 | | Basic research is directed toward an increase of knowledge; it is research where the primary aim of the investigator is a fuller knowledge or understanding of the subject under study rather than a specific application thereof. |
| c. Industry | 1150 | | |
| d. Institution funds | 1160 | | |
| (1) Separately budgeted | 1161 | | |
| (2) Underrecovery of indirect costs and cost sharing | 1162 | | |
| e. All other sources | 1175 | | |
| f. TOTAL (sum of a through e) | 1100 | \$ | _____ % |

CONFIDENTIALITY

Information received from individual institutions in lines 1161 and 1162, or estimates for basic research expenditures, will **not** be published or released; only aggregate totals will appear in tabulations.

Note: Total R&D expenditures reported in line 1100, column (1) and line 1400, column (1) should be the same.

Federally financed R&D expenditures reported in line 1110, column (1) and line 1400, column (2) should be the same.

**ITEM 2. CURRENT FUND EXPENDITURES (TOTAL AND FEDERALLY FINANCED) FOR
SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT, BY FIELD OF
SCIENCE/ENGINEERING: FY 1990
(Include indirect costs)***

| Field of science/engineering | | (Dollars in thousands) | |
|---|------|------------------------|-------------|
| | | (1) Total | (2) Federal |
| a. ENGINEERING (TOTAL) | 1410 | \$ | \$ |
| (1) Aeronautical & astronautical | 1411 | | |
| (2) Chemical | 1412 | | |
| (3) Civil | 1413 | | |
| (4) Electrical | 1414 | | |
| (5) Mechanical | 1415 | | |
| (6) Metallurgical & materials** | 1417 | | |
| (7) Other | 1416 | | |
| b. PHYSICAL SCIENCES (TOTAL) | 1420 | | |
| (1) Astronomy | 1421 | | |
| (2) Chemistry | 1422 | | |
| (3) Physics | 1423 | | |
| (4) Other | 1424 | | |
| c. ENVIRONMENTAL SCIENCES (TOTAL) | 1430 | | |
| (1) Atmospheric | 1431 | | |
| (2) Earth sciences | 1432 | | |
| (3) Oceanography | 1433 | | |
| (4) Other | 1434 | | |
| d. MATHEMATICAL SCIENCES (TOTAL) | 1441 | | |
| e. COMPUTER SCIENCES (TOTAL) | 1442 | | |
| f. LIFE SCIENCES (TOTAL) | 1450 | | |
| (1) Agricultural | 1451 | | |
| (2) Biological | 1452 | | |
| (3) Medical | 1453 | | |
| (4) Other | 1454 | | |
| g. PSYCHOLOGY (TOTAL) | 1460 | | |
| h. SOCIAL SCIENCES (TOTAL) | 1470 | | |
| (1) Economics | 1471 | | |
| (2) Political science | 1472 | | |
| (3) Sociology | 1473 | | |
| (4) Other | 1474 | | |
| i. OTHER SCIENCES, not elsewhere classified (TOTAL) | 1480 | | |
| j. TOTAL (sum of a through i) | 1400 | \$ | \$ |

*PLEASE EXCLUDE from your response any R&D expenditures in the fields of education, law, humanities, music, the arts, physical education, library science, and all other non-science/engineering fields.

**In what field(s) have METALLURGICAL AND MATERIALS ENGINEERING data been previously reported? _____

**ITEM 3. CURRENT FUND EXPENDITURES FOR RESEARCH EQUIPMENT (TOTAL AND
FEDERALLY FINANCED) FOR SEPARATELY BUDGETED RESEARCH AND DEVELOPMENT,
BY FIELD OF SCIENCE/ENGINEERING: FY 1990***

| Field of science/engineering | | (Dollars in thousands) | |
|---|------|------------------------|-------------|
| | | (1) Total | (2) Federal |
| a. ENGINEERING (TOTAL) | 1810 | \$ | \$ |
| (1) Aeronautical & astronautical | 1811 | | |
| (2) Chemical | 1812 | | |
| (3) Civil | 1813 | | |
| (4) Electrical | 1814 | | |
| (5) Mechanical | 1815 | | |
| (6) Metallurgical & materials** | 1817 | | |
| (7) Other | 1816 | | |
| b. PHYSICAL SCIENCES (TOTAL) | 1820 | | |
| (1) Astronomy | 1821 | | |
| (2) Chemistry | 1822 | | |
| (3) Physics | 1823 | | |
| (4) Other | 1824 | | |
| c. ENVIRONMENTAL SCIENCES (TOTAL) | 1830 | | |
| (1) Atmospheric | 1831 | | |
| (2) Earth sciences | 1832 | | |
| (3) Oceanography | 1833 | | |
| (4) Other | 1834 | | |
| d. MATHEMATICAL SCIENCES (TOTAL) | 1841 | | |
| e. COMPUTER SCIENCES (TOTAL) | 1842 | | |
| f. LIFE SCIENCES (TOTAL) | 1850 | | |
| (1) Agricultural | 1851 | | |
| (2) Biological | 1852 | | |
| (3) Medical | 1853 | | |
| (4) Other | 1854 | | |
| g. PSYCHOLOGY (TOTAL) | 1860 | | |
| h. SOCIAL SCIENCES (TOTAL) | 1870 | | |
| (1) Economics | 1871 | | |
| (2) Political science | 1872 | | |
| (3) Sociology | 1873 | | |
| (4) Other | 1874 | | |
| i. OTHER SCIENCES, not elsewhere classified (TOTAL) | 1880 | | |
| j. TOTAL (sum of a through i) | 1800 | \$ | \$ |

*Current fund expenditures in each field for scientific research equipment should be a subset of the "Total" and "Federal" column reported in item 2.

**In what field(s) have METALLURGICAL AND MATERIALS ENGINEERING data been previously reported? _____

**CROSSWALK BETWEEN NSF FIELD OF SCIENCE/ENGINEERING CODES AND
THE NATIONAL CENTER FOR EDUCATION STATISTICS (NCES)
CLASSIFICATION OF INSTRUCTIONAL PROGRAMS**

The left-hand column shows each of the detailed fields as displayed on the questionnaire form. The right-hand column shows the NCES fields which are included with the NSF category as well as some additional illustrative disciplines. These additional disciplines are intended to be guidelines—not sharp definitions—as to what should be reported under a particular field. Questionnaire fields where there are changes in last year's crosswalk are shown in *italics*.

| Questionnaire Field | NCES Classification and Additional Illustrative Disciplines | | |
|----------------------------------|---|---|---|
| a. ENGINEERING | | | |
| (1) Aeronautical & Astronautical | 14.02 Aerospace (also aerodynamics, space technology) | | |
| (2) Chemical | 03.0509 Wood Science (also petroleum refining process, polymer) | 14.07 Chemical Eng. | 14.25 Petroleum Eng. |
| (3) Civil | 04.02 Architecture 14.14 Environmental Health Eng. (also hydraulic, hydrologic, sanitary and environmental, structural, transportation) | 14.04 Architectural Eng. | 14.08 Civil Eng. |
| (4) Electrical | 14.09 Computer Eng. (also power eng.) | 14.10 Electrical, Electronics & Communications Eng. | 14.1002 Microelectronic Eng. |
| (5) Mechanical | 14.11 Engineering Mechanics | 14.19 Mechanical Eng. | |
| (6) Metallurgical & Materials | 14.06 Ceramic Eng. 14.18 Materials Eng. 40.0701 Metallurgy (also welding) | 14.15 Geological Eng. 14.20 Metallurgical Eng. 14.28 Textile Eng. | 14.16 Geophysical Eng. 14.21 Mining & Mineral Eng. |
| (7) Other | 14.01 Engineering, General 14.12 Engineering Physics 14.1401 Environmental Health Eng. 14.23 Nuclear Eng. 14.27 Systems Eng. 30.06 Systems Science (also industrial and management, marine, ocean engineering systems) | 14.03 Agricultural Eng. 14.13 Engineering Science 14.17 Industrial Eng. 14.24 Ocean Eng. 14.99 Engineering, Other | 14.05 Bioengineering & Biomedical Eng. 14.22 Naval Architecture & Marine Eng. 30.03 Engineering & Other Disciplines |
| b. PHYSICAL SCIENCES | | | |
| (1) Astronomy | 40.02 Astronomy (also optical and radio, X-ray, Gamma-ray, neutrino) | 40.03 Astrophysics | 40.09 Planetary Science |
| (2) Chemistry | 40.05 Chemistry (also inorganic, organo-metallic, organic, physical, analytical, pharmaceutical, polymer sciences, (except biochemistry)) | | |
| (3) Physics | 40.08 Physics (also acoustics, atomic and molecular, condensed matter, elementary particles, nuclear structure, optics, plasma) | | |
| (4) Other | 40.01 Physical Sciences, General (used for multidisciplinary projects within physical sciences and for disciplines not requested separately) | 40.0799 Miscellaneous Physical Sciences, Other | 40.99 Physical Sciences, Other |
| c. ENVIRONMENTAL SCIENCES | | | |
| (1) Atmospheric | 40.04 Atmospheric Science & Meteorology (also aeronomy, solar, weather modification, extraterrestrial atmospheres) | | |
| (2) Earth Sciences | 14.26 Surveying & Mapping Sciences 40.06 Geological Sciences 40.0703 Earth Science (also engineering geophysics, general geology, geodesy and gravity, geomagnetism, hydrology, inorganic, isotopic, organic geochemistry, lab geophysics, paleomagnetism, paleontology, physical geography and cartography, seismology) | | |
| (3) Oceanography | 26.0607 Marine Biology 40.0702 Oceanography (also biological, chemical, geological, or physical oceanography) | | |
| (4) Other | (used for multidisciplinary projects within environmental sciences) | | |
| d. MATHEMATICAL SCIENCES | | | |
| | 06.1302 Operations Research (Quantitative Methods) (also algebra, analysis, applied mathematics, foundations and logic, geometry, numerical analysis, topology) | 27 Mathematics | 27.05 Statistics |
| e. COMPUTER SCIENCES | | | |
| | 06.12 Management Information Systems (also design, development, and application of computer capabilities to data storage and manipulation, information science) | 11 Computer & Information Science, General | 30.09 Imaging Science |

| | | | |
|---|---------------------------------------|---------|------------------------------------|
| i. LIFE SCIENCES | | | |
| (1) Agricultural | | | |
| 01.03 | Agricultural Production | 01.0303 | Aquaculture |
| 02 | Agricultural Sciences | 02.04 | Plant Science |
| 03 | Renewable Natural Resources | 04.06 | Landscape Architecture |
| (also agricultural chemistry, agronomy, animal science, conservation, fish and wildlife, forestry, horticulture) | | | |
| (2) Biological | | | |
| 18.0201 | Clinical Anatomy | 18.0202 | Clinical Biochemistry |
| 18.0204 | Clinical Pathology | 18.0205 | Physiology |
| 18.1002 | Allergies & Endomology | 18.1009 | Immunology |
| 18.2202 | Epidemiology | 19.05 | Food Science & Human Nutrition |
| 26.01 | Biology, General | 26.02 | Biochemistry & Biophysics |
| 26.0302 | Bacteriology | 26.04 | Cell & Molecular Biology |
| 26.0601 | Anatomy | 26.0602 | Biometrics & Biostatistics |
| 26.0604 | Embryology | 26.0606 | Histology |
| 26.0610 | Parasitology | 26.0612 | Toxicology |
| 26.0701 | Zoology | 26.0702 | Entomology |
| 26.0703 | Genetics, Human & Animal | 26.0704 | Pathology, Human & Animal |
| 26.0706 | Physiology, Human & Animal | 26.0799 | Zoology, Other |
| 26.99 | Life Sciences, Other | 42.14 | Psychopharmacology |
| (also biogeography, physical anthropology) | | | |
| (3) Medical | | | |
| 18.0299 | Basic Clinical Health Sciences, Other | 18.04 | Dentistry |
| 18.1004 | Colon & Rectal Surgery | 18.1001 | Medicine, General |
| 18.1008 | Geriatrics | 18.1005 | Dermatology |
| 18.1012 | Nuclear Medicine | 18.1010 | Internal Medicine |
| 18.1015 | Orthodontic Surgery | 18.1013 | Obstetrics & Gynecology |
| 18.1019 | Pediatrics | 18.1016 | Orthopedic Surgery |
| 18.1021 | Plastic Surgery | 18.1020 | Physical Medicine & Rehabilitation |
| 18.1023 | Psychiatry | 18.1024 | Neurology |
| 18.1026 | Surgery | 18.1027 | Thoracic Surgery |
| 18.1099 | Medicine, Other | 18.1106 | Psychiatry/Mental Health |
| 18.13 | Osteopathic Medicine | 18.14 | Pharmacy |
| 18.22 | Public Health | 18.24 | Veterinary Medicine* |
| 26.0605 | Endocrinology | 26.0608 | Neurosciences |
| 26.0611 | Radiobiology | | |
| (also cardiology, gastroenterology, preventive medicine and community health, pharmacy, oncology) | | | |
| (4) Other | | | |
| 17.0807 | Occupational Therapy | 17.0813 | Physical Therapy |
| 17.99 | Allied Health, Other | 18.01 | Audiology & Speech Pathology |
| 18.07 | Health Sciences Administration | 18.09 | Medical Laboratory |
| 18.99 | Health Sciences, Other | 18.11 | Nursing |
| (used for multidisciplinary projects within life sciences) | | | |
| g. PSYCHOLOGY | | | |
| 13.08 | School Psychology | 17.0801 | Art Therapy |
| (also animal behavior, clinical, educational, experimental, human development and personality, social) | | | |
| 42 | Psychology | | |
| h. SOCIAL SCIENCES | | | |
| (1) Economics | | | |
| 01.0103 | Agricultural Economics | 06.05 | Business Economics |
| (also econometrics, international, industrial, labor, public finance and fiscal policy) | | | |
| (2) Political Science | | | |
| 44.01 | Public Affairs, General | 44.03 | International Public Service |
| 44.99 | Public Affairs, Other | 44.05 | Public Policy Studies |
| 45.10 | Political Science & Government | | |
| (also regional studies, comparative government, legal systems, political theory) | | | |
| (3) Sociology | | | |
| 45.02 | Anthropology (Social & Cultural only) | 45.05 | Demography |
| (also comparative and historical, complex organizations, cultural and social structure, group interactions, social problems and welfare theory) | | | |
| (4) Other | | | |
| 04.03 | City, Community & Regional Planning | 05 | Area & Ethnic Studies |
| 45.01 | Social Sciences, General | 43.01 | Criminal Justice |
| 45.12 | Urban Studies | 45.03 | Archaeology |
| | | 45.99 | Social Sciences, Other |
| (also history of science, linguistics, socioeconomic geography) | | | |
| i. OTHER SCIENCES, n.e.c. | | | |
| (used when the multidisciplinary and interdisciplinary aspects make the classification under one primary field impossible) | | | |

* Institutions with schools of veterinary medicine should distribute R&D expenditures among the appropriate disciplines (agricultural, biological, and medical) rather than only in medical sciences.



NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

RETURN THIS COVER SHEET TO ROOM 233 IF YOU DO
NOT WISH TO RECEIVE THIS MATERIAL ☐ , OR IF
CHANGE OF ADDRESS IS NEEDED ☐ , INDICATE
CHANGE, INCLUDING ZIP CODE ON THE LABEL (DO NOT
REMOVE LABEL).

SPECIAL FOURTH-CLASS RATE
POSTAGE & FEES PAID
National Science Foundation
Permit No. G-69

MIS505
MR. JONATHAN FIFE
ASSOC
HIGHER EDUC
STUDY OF
ONE DUPONT CIRCLE NW #630
WASHINGTON, DC 20036

NSF 92-321